



A Database Publication

# AppleUser

Vol. 7 No. 8 August 1987 £1.50

Apple in control at  
the National Museum  
of Photography

Infocom's Dave  
Lebling reveals all

The dos and don'ts  
of page design

Modifying the Mac's  
control panel

Shareware: To pay  
or not to pay?

Voice controlled  
environments

## REVIEWS

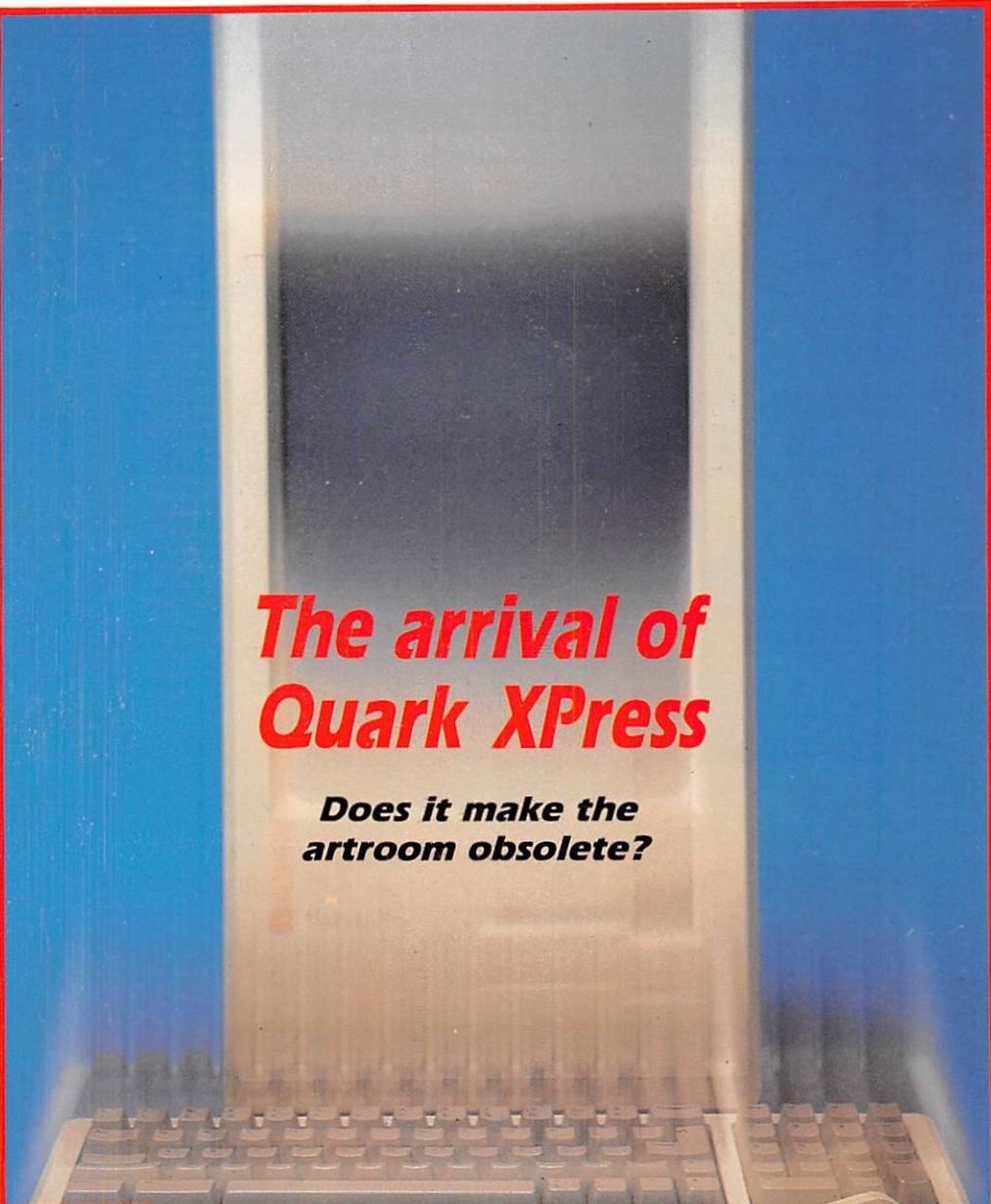
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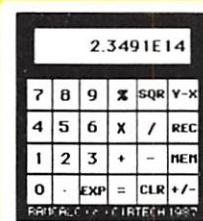
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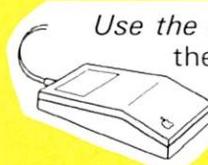
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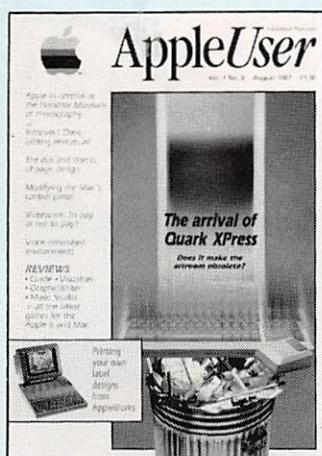
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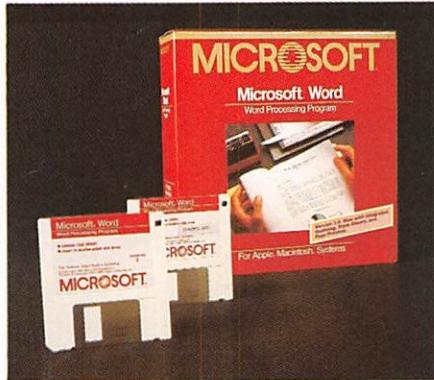
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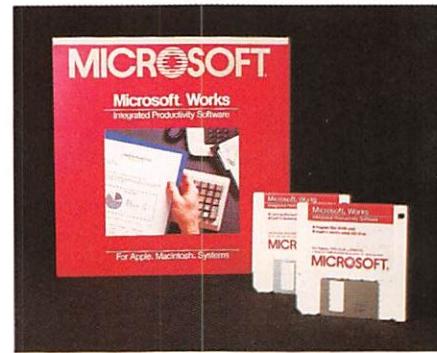


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# Desktop boosts Apple's fortunes

APPLE is still riding the crest of the wave in the computer world, thanks in the main to desktop publishing.

It accounted for most of the company's 70 per cent increase in turnover last year. And it has already been forecast that it will be responsible for a similar boom this time round.

The news of the company's continuing success story in this field was broken by David Jones, Apple's desktop publishing supremo, at a press conference in London.

However, just as Apple's current supremacy in this market sector is soon likely to be threatened by IBM, it is poised to snatch the lead in another - desktop presentation.

It aims to achieve this with the

help of a number of major American third party support operations.

One of these has just established a presence in the UK for the first time.

The company in question is SuperMac, developers of a range of high quality peripherals for the Macintosh which converts it into a high power graphics workstation.

Such is the relationship between Apple and SuperMac that when the Macintosh II was launched in the States, a Super-Mac Spectrum colour monitor was used to demonstrate its full capabilities.

This boasts a 19 inch screen and colour graphics with an expandable palette of up to 16.8 million colours.

SuperMac also has a presentation product designed specifically for the SE, Superview, which enables two A4 pages to be seen in crisp definition at the same time.

"When you combine these sort of peripherals with the technology to make slides from the screen and even colour separations, then you can see why Apple is going to make the running in the presentation stakes", commented an industry pundit.

Added Apple's David Jones: "We haven't even started our marketing drive in the UK on desktop presentation.

"That's why we particularly welcome the recent arrival of SuperMac over here".

## Cheaper laser

*REPORTS from America suggest that Apple is working on a low cost laser printer which would not incorporate Adobe's Postscript.*

*The rumours caused a steep fall in Adobe's share price, both Apple and Adobe have refused to comment on the issue.*

*Sources close to Apple confirm that the company will soon release two new printers. But the printer causing most concern for Adobe is a "personal laser".*

*This is a 300dpi machine that uses embedded quickdraw routines to handle the printer output so it doesn't need Postscript to interpret the text.*

*With Quickdraw as the interpreter very clean page formatting is possible but page positioning is one-dimensional.*

*The anticipated price of the new machine is \$1995.*

## Election courtesy MacII

**A MACINTOSH with an internal 40Mb disc drive proved invaluable to the BBC News and Election Report team for 18 live BBC transmissions over the election period.**

**The Macintosh II was the only business computer of its type able to provide analysis of the vast amount of poll and final election results fast enough to back-up live television commentary.**

**Dominic Cameron, senior producer in charge of graphics at the BBC, was able to supply up-to-the-minute election predictions and refined trend analysis to TV presenters Peter Snow and David Dimbleby.**

**He said: "The Macintosh's processing power was essential as I was watching information coming in very fast and had to look rapidly for significant key stories within that mass of data to feed to presenters.**

**"Using the Macintosh II was the only way of doing it sensibly, and it allowed us to research and react to the very latest data and keep the programme editors happy".**



Election information via MacII

## Telex for the Macintosh

APPLE has expanded the range of Macintosh communications with the introduction of AppleTelex, a product which gives Macintosh users full telex facilities.

The package consists of a software application, Vitex, developed by AM Technology and a hardware telex manager produced by Trend.

There is also a multi user ver-

sion which has been developed by Internet and uses the AppleTalk network.

AppleTelex employs many of the Macintosh interface features including pull-down menus, transparent commands and windows. The cut and paste facility allows text to be moved within a document and between documents or applications. It also

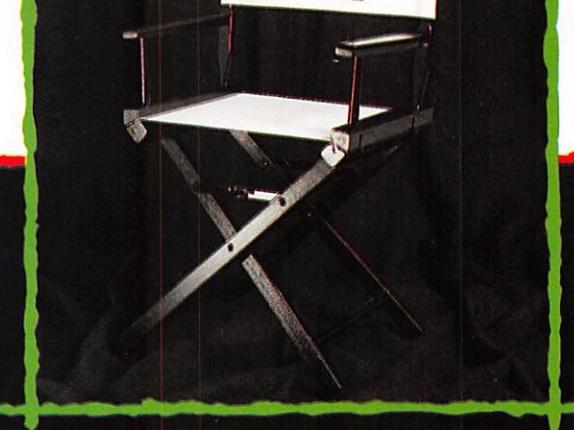
reads text produced in MacWrite word processing software.

Telexes can be received and stored while the Macintosh is switched off. Outgoing messages can be saved until the network is quiet or sent to the head of the queue as priority.

Price for the single unit is £1995 and £2995 for the multi user version.



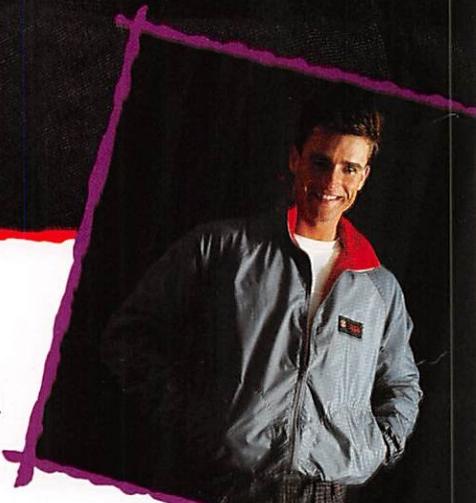
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## Compute or else, managers warned

MANAGERS who are keyboard illiterate would increasingly be counted among the lonely failures, Scotland CBI director John Davidson warned at the opening of the new Glasgow AppleCentre.

He said the computer was still foreign territory to many managers.

"There is a lack of appreciation of its capacity dramatically to increase management efficiency and its ability quickly to respond to the changing demands of business", he said.

"Every manager should be as able to use a computer as to pick up a telephone. The computer is a communication tool. Managers who recognise that will be staying in business."

"The personal computer is a significant element in this explosion", he said.

Like others nationwide the Centre, at the Scottish Exhibition and Conference Centre in Glasgow, is a partnership between Apple and a local dealer, in this case Bain Business Solutions.

In August, Britain's biggest AppleCentre will be opened on Merseyside in conjunction with Computer City.

It will occupy a 3,500 square feet site within the precincts of the University of Liverpool – which has already been supplied with about 100 Macintoshes.

Computer City boss Owen Hargreaves says there is still a thriving core business community in the area and an exceptionally high rate of new start-up companies.

"We think the time is right for this expansion. There is great potential, especially in the field of desktop publishing", he said.

## APPLE COURTING ADA

APPLE is going on the defensive – by moving forward. Work is continuing on an Apple version of Ada, which was recently chosen as the official UK defence language.

Ada is used in the US too, and provides the lucrative market at which Apple is aiming. Apple is known to have contracted a company to develop an Ada compiler for the Macintosh II.



John Horn, chairman of the Bain Group, John Davidson and David Hancock cut the Apple shaped cake at the opening of the Glasgow AppleCentre.

## A Plus for Macs

DBASE III Plus applications are now possible on the Macintosh with the arrival of McMax from Nantucket (0992 55421).

The new program allows users to develop database applications in either Dbase or McMax. Additionally, Dbase III Plus applications can be transferred from other makes of machine and run on the Macintosh, including the Plus and XL.

Nantucket stress that the new package is not a compiler but a fast interpreter, no re-writing or re-entry of data is necessary and the only difference between their product and Dbase III Plus is speed, McMax is claimed to be up to four times faster.

The hardware requirements of the program are 512k of ram, two disc drives or a single floppy and hard disc.

Price £347.

## More Pascal

PDO Pascal for the Apple Macintosh has been released by Pecan Software (0272 741198).

The new package is a version of UCSD Pascal which is self documenting and was first developed to encourage good programming practice.

Source code created by the PDO Pascal compiler is described by Pecan as being ultra portable and can be used on machines other than the Macintosh.

PDO comes complete with a UCSD Pascal computer editor, filer, graphics and utility programmes. Price £69.95 for a single package or £25 for 20 or more.

★★★

A MACINTOSH version of Borland's Turbo Pascal tutor has been developed and is due out this autumn.

Accompanied by a 700 page manual and disc it includes 50 sample programs complete with fully explained source code.

A company spokesman said that there had been a lot of interest in Turbo Pascal from the educational field.

"We're committed to supporting Turbo Pascal users everywhere with professional software development and programming tools", he said.

## First Desktop awards

THE UK desktop publishing industry – estimated to be worth £300 million by 1988 – is to have its own version of the Oscars.

Pira, the UK technology centre for the printing and publishing industries, is to sponsor the new awards.

The winners will be announced at the Desktop Publishing Show 1987 to be held at London's Business Design Centre from October 15 to 17.

There will be three major award categories:

- The newspaper or magazine to truly reflect the virtues of the new technology.
- The most outstanding company report to be produced in-house.
- The best example of a leaflet, newsletter or brochure.

In each case, all the work must have been predominantly produced using a desktop publishing system.

A panel of experts drawn from the fields of design and print will make the final decisions.

Entries consisting of one example of desktop publishing accompanied by full details of the production methods used must be received no later than noon on Thursday, October 1.

They should be sent to The Desktop Publishing Awards 1987, Europa House, 68 Chester Rd, Hazel Grove, Stockport SK7 5NY.

## Deal with DEC?

APPLE is trying to move into the corporate markets by forming an alliance with DEC.

Apple's communications manager Chris Jones said: "An alliance could benefit both companies because our products integrate well. I would like Apple and DEC to explore mutually beneficial opportunities".

If Apple is to penetrate the corporate market DEC users would seem to be its prime target. Thirty per cent of all DEC users in the US and the UK use Apple Macintosh systems as well.

If an agreement comes about DEC and Apple would present a sizeable challenge to IBM.

# Exploring the Addressing Modes

LAST month we examined the new instructions offered by the 65C816, the latest member of the 6502 family which can handle up to 16Mb of memory. You may remember that I wasn't impressed by the instruction set, concluding that it was boring. Let's now turn to the Addressing Modes which the 65C816 offers.

Perhaps we'd first better define what we mean by an Addressing Mode. An assembly language instruction has three parts. The first is the label these are used only when the program will in some way jump to that line and are roughly equivalent to line numbers in Basic.

Then there comes the opcode – the instruction itself, for example ADC or ROL. Finally we find the operands, which specify the data on which the operation will be performed. It is the operands which define the addressing mode.

Those of the various members of the 65xx family are shown in Figure I. Refer to books on 6502 programming for a description of those peculiar to that device – we shall concentrate on those introduced on the 65C02 and 65C816. Again, those

**Stuart Bell concludes  
his examination of  
the chip at the heart  
of the Apple IIgs**

unique to the Rockwell 65C02 will be ignored.

In the examples, actual addresses are shown for clarity (\$7EEE), whereas in practice a programmer would use LDA COUNT4 rather than LDA \$7EEE, with COUNT4 having previously been defined as being equal to \$7EEE.

Let's glance at those addressing modes introduced by the 65C02 device. Both are extremely useful. The *absolute indexed indirect* mode offers a very powerful way of accessing a series of vectors – a vector is an address of a routine within a program. Many large programs contain tables of such vectors to permit rapid access to the routines.

For example, the Basic Input/Output System of the Apple Pascal system has a list

of vectors to the routines which perform input/output for each device.

Now, if there is a table starting at, say, address \$8000, and we want to call the seventh routine, we set the X register to \$0C (that is,  $(7-1) * 2$  in hexadecimal) then use: JSR (\$8000,X). Obviously, X might either be calculated, or passed into the master calling routine as a parameter.

Before this mode was available, various rather inelegant techniques – such as modifying the operand of a JSR instruction before it was executed had to be employed.

Similarly, the **direct indirect** mode simplifies a standard technique of using a pair of locations in the zero page area as a pointer to another data area.

Before the arrival of the 65C02, a common sequence of instructions used was LDY #00 followed by LDA (\$55,Y). The effect is to load the accumulator with the data pointed to by the address at location \$55.

The Y register had to be used because no addressing mode that did not use it was suitable. Hence, Y had to be zeroed first. As shown below, this was often used in programs supplied by Apple.

Now, we need not waste time and code space with a pointless reference to the Y index register, and can access the address at \$55 directly with: LDA (\$55), (or LDA @55 using the Apple Pascal assembler standards).

The 65C816's **absolute long** mode is simply an extension of the 6502's absolute mode. Now a three byte address is permitted, to allow access to the 16Mb address space of the 65C816.

**Absolute Long, Indexed with X** means that the X register (now usually a 16 bit value) is added to the address given in the instruction to produce the effective address. In the example given in Figure I, if X contained \$1030, the address accessed would be \$100000 + \$1030 = \$101030.

The **block source bank, destination bank** mode is used only for the 65C816's block move instructions. The two bytes specify the source and destination banks to be used in the transfer. Clearly, the two addresses within the banks, and the number of bytes to be moved must also be specified.

With MVN (move negative), the X register contains the start address of the source block, the Y register contains the address of the destination block, and the Accumulator contains one less than the number of bytes to be moved.

In the case of MVP, the X and Y later

## 6502 Addressing Modes

- Absolute
- Absolute Indexed with X
- Absolute Indexed with Y
- Absolute Indirect
- Accumulator
- Direct (Zero Page)
- Direct Indexed Indirect
- Direct Indexed with X
- Direct Indexed with Y
- Direct Indirect Indexed
- Immediate
- Implied or Inherent
- Relative
- Stack

## Example

```
LDA $7FFE
SBC $45,X
DEC SA3,Y
JMP ($5678)
ASL A
SBC $81
LDA ($66,X)
CMP S4A,X
LDX $55,Y
STA ($70),Y
ADC #0F
TAY
BCS $6754
PHA
```

## 65C02 & 65C816 Addressing Modes

- Absolute Indexed Indirect
- Direct Indirect

## Example

```
JSR ($5EE1,X)
LDA ($55)
```

## 65C816 Addressing Modes

- Absolute Long
- Absolute Long, Indexed with X
- Block Source Bank, Destination Bank
- Direct Indirect Long
- Direct Indirect Long Indexed
- Relative Long
- Stack Relative
- Stack Relative Indirect Indexed

## Example

```
ADC $066566
CMP $100000,X
MVN #S04,#S06
LDA [$50]
ORA [$88],Y
BRL $333
ADC $56,S
LDA ($56,S),Y
```

Figure I: Addressing modes

registers point to the END of the source and destination blocks. We'll look later at how the block move instructions might replace a piece of 6502 code.

**Direct indirect long** describes a development of the 6502's zero-page indirect addressing. We have noted previously that the Direct Register can be added to addresses effectively to allow a moveable zero-page.

In this case, the single byte offset in the operand is added to the direct register, and the two byte sum then points to a three-byte address. That address of a word anywhere in the 16Mb address space is then used as the data. (Note that in emulation mode, the effect is slightly different).

The **direct indirect long indexed** mode adds the ability to index using the Y register to the **direct indirect long** mode described above. Note that as the position of the Y after the bracket in the operand suggests, the value in the Y register is added to the final three-byte address, not to the one pointed to by the first address formed.

In comparison, the **relative long** mode is nice and simple. It is an enhancement of the **relative** mode of the 6502, as exemplified by the conditional branch instruction, BPL \$7654, when the destination address must be within plus or minus 128 bytes.

Now a longer relative jump is possible: BRL \$4000 is the instruction to perform a **branch always long** from anywhere within 32000 bytes of the destination (\$4000). That is, whereas the relative mode has only a single byte offset, relative long mode has a two byte offset.

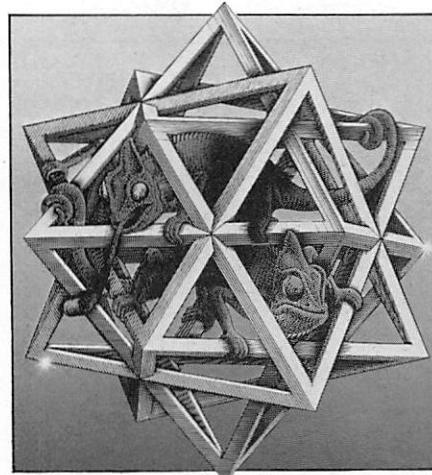
Our survey of 65C816-specific addressing modes concludes with two which are related to the stack. **Stack relative** allows access to anywhere in bank zero, by adding the single byte offset within the operand to the value of the stack pointer, then using the word pointed to by that sum.

Thus, if in the example given in Figure I, S was equal to \$4444, then the word at (\$56+\$4444) = \$449A would be added to the Accumulator. This mode allows easy access to those values just below the top of the stack, without having to pop off higher values before accessing the required data.

Thus, getting at, say, the fourth most-recently stacked value is simple – whether this is a programming technique to be encouraged is another matter. It may be argued that stacks should only be accessed conventionally; from the top.

Conversely, using **stack relative** mode is far safer than temporarily unstacking data to get at lower values, particularly if the routine might be interrupted in the middle of this unstacking process.

Finally, **stack relative indirect indexed** allows the value of the Y register to be added as an offset to the word found as above. The new sum is then used as a pointer to the required data, thus adding a new level of indirection in comparison with **stack relative**.



Overall, the new addressing modes offered by the 65C816 represent a modest advance on those of the 6502 and 65C02, rather than being in any way spectacular. Some are simply long versions of old modes; others are perhaps too obscure to be more than rarely useful. Perhaps three are worthy of note:

### Implementing jump tables

**Absolute indexed indirect** provides a very neat way of implementing jump tables. It can be used (not only on the 65C816 but also the 65C02) with either the JMP or JSR instructions. At the heart of the Apple Pascal system is the code of Figure II which takes a value in the accumulator, then calls the "A'th" routine in a table of routine addresses.

The 6502 code is very efficient, and almost certainly cannot be bettered on the 6502. On the 65C816, the code becomes

somewhat simpler:

By my reckoning, the 6502 version takes 22 clock periods if the branch to 'SLDC' is not taken. That means that for every instruction obeyed, there is an overhead of 22 micro-seconds just to decode it. The time for the 65816 version is 20 clock periods, giving a saving of 9 per cent, even with the same clock speed.

The saving in fact comes from the use of the **direct indirect** mode at the start of the code. The absolute indexed indirect mode at the end doesn't save time, but it does save space, and makes the code more comprehensible. Since both are usable on the 65C02, I must see if I can get the modifications to work. I suspect that the savings seen here - 9 per cent speed and 20 per cent code-space - will be typical for such already optimised code. When it comes to handling a lot of 16 bit data, the savings will be much greater – 50 per cent should be easily attainable because of the number of **LDA**s and **STAs** of 8 bit values which will be avoided.

**Relative long** does, as we've noted, allow long branches. What is not so obvious is that this opens up the possibility of what is termed 'position independent code'. (P.I.C.) This describes a program or routine which will run wherever it is loaded in memory. This means that different routines can be loaded without worrying that two or more need to be in the same area, thus permitting flexible and efficient use of memory.

In conventional 6502 programming, two kinds of instruction prevent us writing P.I.C. The first are those which transfer control to (for example jump to or call) specific

```

=====6502 VERSION=====
;
; This is the heart of the p-machine i-fetch loop.
; IPCL is the p-machine program counter, and points to
; the next instruction to be obeyed.
; if top bit zero, code is SLDC, otherwise multiply by two
; and use as index into main p-code table.
; each vector points to routine to obey that particular
; p-code.

INTLOOP LDY #000
      LDA @IPCL,Y ;load accumulator with op-code
      BPL SLDC    ;if plus (top bit 0), goto SLDC
      ASL A        ;multiply code by two, as for each code
      ;we need two bytes to store the address

(vector)
      STA INDJMPL ;store (code * 2) in index into table
      JMP INDJMPH ;jump to where now-modified index points.

=====
modes===
;nb Not debugged - no 65C816 on which to run it!
;assumes direct register set to 0000
;assumes M bit set to 1 (8 bit register)
INTLOOP LDA @IPCL          ;get p-code ('@' is equivalent to '(' )
      BPL SLDC          ;if top bit of low byte 0, goto SLDC
      ASL A
      TAX
      JMP CODETABLE,X ;jump to X'th address in vector list
CODETABLE
      ;(actually, CODETABLE set to 128 bytes before
      table)

```

Figure II: Apple Pascal code a possible 65816 version

```

;== ROMDISC: 65C816 PROVISIONAL VERSION =====
;n: not debugged - no 65C816 to do it on!
;parameters passed in:
; BLOCKNO: starting block number,
; NBYTES: number of bytes to be transferred.
;           (must be less than 64K,
;            so max 2 banks involved)
; BUFF: buffer in zero page
;on entry, assume already in full native mode.
ROMREAD LDA BLOCKNO ;full 16 bits in one load!
LDX #07
ROTLOOP CLC ;shift acc right 7 places to
ROR A ;calculate bank from blockno
DEX
BNE ROTLOOP
CLC
ADC RAMSTART ;add on start of RAM for disc.
STA BANKNO ;save it
LDA BLOCKNO
AND #007F ;mask off all but 7 bits -
SEC ;set carry, and
XCE ;copy to emulation bit, so can
XBA ;swap two halves of acc,
CLC
XCE ;return to native mode
ASL A ;form start address in bank
STA STARTADDR ;save start address
CLC
MOVEIT ADC NBYTES ;add start address and number of
BCS TWOBANK ;bytes; if carry, then part of area
             ;is in next bank of memory
             ;if here, only one bank to access - it's all in it.
             ;Now set up registers for MVN instruction.
LDA NBYTES
DEC A ;accumulator holds NBYTES - 1.
LDX STARTADDR ;X holds start of source area
LDY BUFF ;Y holds start of destination area.
MVN BANKNO,#00 ;copy from bank BANKNO to bank 0.
RTS ;that's it - all done!
TWOBANK ; if here, know that will need two transfers, from two
banks.
LDA STARTADDR ;get starting address
EOR #FFFF ;find how much to read, first bank
STA BYTES1 ;save it for future use
JSR MOVEIT ;call one-bank routine for 1st bank.
LDA BYTES1
SEC ;set carry, so extra 1 added!
ADC BUFF ;calculate buffer start for 2nd
STA BUFF ;bank = 1st buff + 1st bytecount
STZ STARTADDR ;start address in 2nd bank is 0000
LDA NBYTES
CLC ;clear carry, so extra 1 subtracted!
SBC BYTES1 ;subtract number already transferred
JSR MOVEIT ;call 1 bank routine for second bank.
RTS ;return to calling program.

```

Figure III: Provisional rom code in 65816 code

▷ memory locations. The 6502 only had short relative branches, the 65C816 allows long ones, which can be used instead of JMP's, giving P.I.C.

However, the 65C816 does not offer a relative subroutine call, only the usual ones (JSR and JSL) to a fixed location. All is not lost, for the 65C816 instruction **PER** permits the simulation of a Branch to Subroutine.

The PER instruction pushes an "effective address". This is on to the stack specified in the operand in a form relative to the Program Counter. The PC is, of course, the instruction counter, and holds the current address, so the following code will simulate a BSR, provided that the routine is on the current program page:

assembly language programs, but it can be vital for large multi-tasking systems whenever more than one program is to be loaded at any one time. The 65C816 makes the writing of P.I.C. possible, if not simple.

That concludes my discussion of the Western Design Centre 65C816 and 65802 microprocessors. As the code examples shown above demonstrate, it offers a significant improvement over the 6502. Many of these are available in the emulation mode, a designation which really only means that the register layout is more limited.

In native mode, the availability of a 16Mb address space will open up new horizons to the Apple II range. Nevertheless, as I have studied the 65C816, I repeatedly found myself comparing it with the Motorola 68000 processor, which has been available for seven years.

Quite honestly, even the 'native' 65C816 can't compete with the 68000's 16 32 bit registers and much more powerful and symmetric instruction set. Very soon, the 65C816 will find itself compared not only with the 68000, but with its more powerful sister chips, the 68010 and 68020.

At the start of this short series, I noted that the 65C816 was not a "16 bit 6502" because when emulating the older device, no more registers are available so old 6502 software will run no more quickly.

In that sense, the 65C816 is certainly not a "16 bit 6502", but in the sense that its architecture is clearly an enhancement of the 6502, and builds on that design, such a designation is quite accurate. As a consequence of that heritage, it looks like an expanded 8 bit microprocessor, rather than one designed from a 'clean start'.

Having said that, the most widely used microprocessor in micro is the 8088 and 8086. That, too is clearly a stretched 8 bit micro, and it has succeeded in the market despite its technical limitations.

I hope that the Apple IIgs, with all the power of Apple behind it, will also be able to overcome the limitations of what I believe to be a no more than adequate architecture. □

```

PER BACKERE - 1      ; stack one less than where we
                      ; we want to come back to.
BRL ROUTINE          ; branch relative long to the routine.
BACKERE .....        ; code 'returned to' from routine.

ROUTINE anywhere     ; code of routine - called from

RTS                  ; at end, return to where-ever called,
                     ; using address stacked by the PER
inst.

```

The second problem with writing Position Independent Code writing instructions which access data without having to know the actual physical address of the data. Again, the PER routine comes to our aid. All we need do is to use PER to stack the address of a data table.

If, for example, the table is 300 bytes away from the PER instruction itself, the instruction makes the 65C816 stack the value (PC+300). This address can be unstacked and loaded into a register (most probably the Direct Register) and used to point to wherever the table might be.

P.I.C. isn't too important for small

operations. As I noted earlier, block-move operations are also very useful for the implementation of Ramdisks, allowing rapid loading of data from the memory area that is simulating a disc.

To investigate this instruction, I turned to my own simple implementation of a Romdisc (using eproms), which I use on my Apple Pascal system. My 6502 routine runs to about 300 bytes. As an experiment, I tried encoding it for a 65C816, assuming that ram banks from Ramstart upwards are assigned to the RAMDISC. The gains in code space are clear and it will also be much faster. (Figure III).

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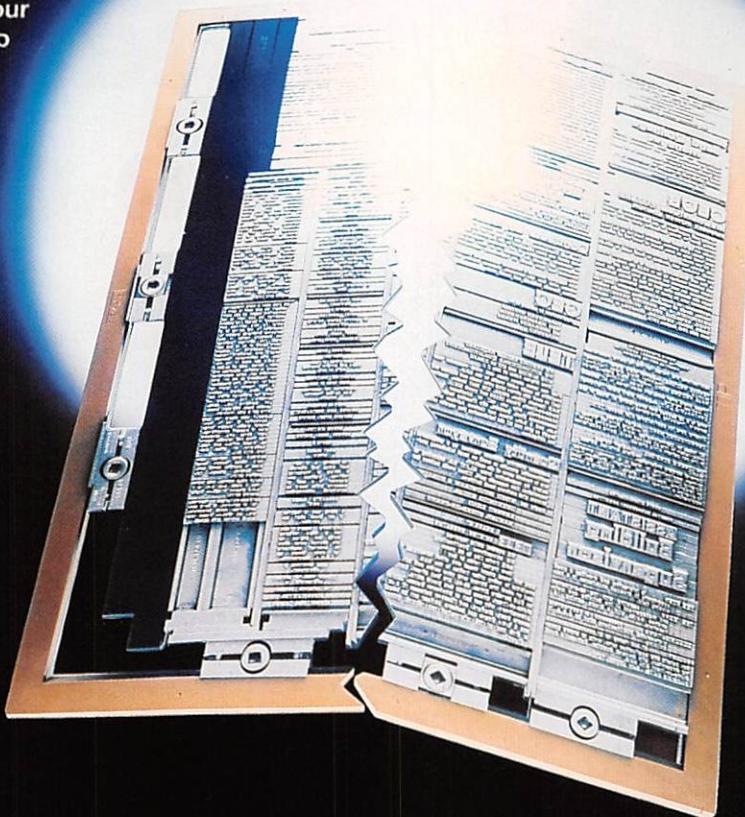
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WHEN the 1986 awards were handed out by the Software Publisher's Association in America, the software industry's main trade association there, the name of Infocom was prominently featured.

Silver Certificates were awarded to its recent adventures, *Wishbringer* and *Leather Goddesses of Phobos*, for selling more than 50,000 copies, a Gold Certificate went to an earlier game, *Suspended*, for passing the 100,000 mark.

And there were Platinum Certificates (for over 250,000 sales each) for Infocom's two most famous titles, *Zork* and *Hitchhiker's Guide to the Galaxy*.

Sales of *Zork* have obviously come on a little from when it was originally released, as I discovered when I spoke to the game's co-author, Dave Lebling, making his first visit to England.

### Early days

"*Zork* did start slowly", he told me. "We were originally distributed by Visicorp, which is the company that also distributed VisiCalc, the first spreadsheet program, and they sort of had the feeling I think that, well, this is a very nice game but games were not very exciting at the time, but we've got this spreadsheet which is really exciting."

"So it started off with pretty much what games sold then in the United States when they were introduced, which was about ten or twelve thousand copies. That was pretty much what they expected, and they weren't terribly interested in pushing it harder."

"So we got the distribution rights back from them and started distributing it ourselves. We repackaged it and it was very successful, and because it was our own product we were very motivated to make it a success and it began to pick up from that time".

As well as helping to write *Zork*, Dave Lebling was one of the men behind the setting up of Infocom in the late 1970s.

The Dynamic Modelling Group was really where we all started from, which was a research group at MIT (Massachusetts Institute of Technology) and we did many

# Interview at the end of the universe

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**Mike Gerrard  
meets Infocom's  
Dave Lebling**

---

different things. We did electronic mail and database systems and all kinds of very serious funded research-type stuff. But we also spent a lot of time fooling around in our spare time, hacking.

"At the time we were on a computer network, ARPAnet, that was run for research sites that got money from the Department of Defence in the United States and one of the things that this network is used for is sending interesting software around from place to place.

"One such piece was this game called *Adventure* or *Colossal Cave Adventure*, and everyone just went totally berserk over it.

"The excitement was astonishing because nothing like it had ever been seen before, and all work ceased throughout almost the entire country at these research sites.

"It was almost like an infection. One site would get it and all work there would cease for a couple of weeks and then it would spread to sites nearby...you would

look at the computers, because these were all time-sharing machines, and there would be 12 people logged in but they were all playing *Adventure*".

This original game was written by two programmers called Crowther and Woods, and because it was public domain software it has since appeared in various versions, notably in the UK by Level 9/Rainbird as the first part of the Jewels of Darkness trilogy for the Apple II and Macintosh. *Adventure* was inspired by *Dungeons and Dragons*, as was Dave Lebling himself.

---

**Magic and mystery**

"I used to play D&D and I liked the idea of being able to play it on a computer. I've always been a science fiction and fantasy fan and that was a way of indulging that interest, so the combination of D&D, fantasy, computers, was so seductive that it was impossible that I wasn't going to end up playing it".

The game and the idea of computerised adventures attracted several other people at MIT who set about trying to write their own game. This dealt with magic and mystery in the great underground empire of *Zork*.

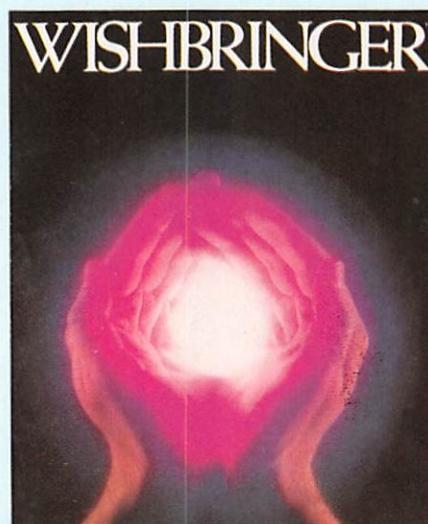
Dave Lebling was principally involved in the creation of a parser that would extend the simple verb-noun format of adventure to read and understand quite complex inputs from players.

*Zork* was hacked into ARPAnet, and when the group of people from MIT decided they wanted to form a software company it was to be their first release.

Says Dave: "We wanted to have a software company, and we weren't quite sure of what it would do, but we thought *Zork* was a good thing to start with because we had seen Scott Adams' adventures, which were the first ones to be seen on micros.

"We said they were all very nice but we could do much better and it was just a question of how much of our mainframe adventure game we could fit on a micro. We found the answer was about one-third, so we did that and then the next third and the next, making three games out of it".

*Zork* proved to be the making of



Infocom, and although the company's published a couple of other products - Cornerstone, which was a relational database, and Foobitzky, a graphic strategy game - it is the text adventure game they are renowned for.

The latest release, Hollywood Hijinx, is the 23rd in a row. It comes, as do all the others now, with the familiar detailed packaging that makes the opening of the box containing an Infocom game such a treat.

Hollywood Hijinx is written by Dave "Hollywood" Anderson, who started with Infocom as an adventure tester, a route taken by several people now writing adventures for the company.

"Four of our writers are former testers", Dave Lebling explains, "such as Steve Meretzky, who wrote Hitchhiker's with Douglas Adams, then Jeff O'Neill who did Ballyhoo, Dave Anderson, and a new writer named Amy Briggs.

"What often happens is that people come into our testing department and they start hinting that they have a good idea for a game, and that's how they turn into writers. The way we typically write games is to write a short scenario of three or four pages of 'This is what it's going to be about' and circulate it to other authors to see what they think, almost like a job application, and that's what Hollywood did - his nickname really is Hollywood, by the way.

"We get together at least once a week, all the writers, and discuss what's going on. That's another incentive for a tester to become a writer, because testers are barred from our lunches! Every so often someone will say 'Don't tell me any of the details of any of the puzzles,' and you even get people saying, 'I'm going to get up and leave now, I don't want to hear it.' That's so you get the pleasure of playing the game for yourself when it's finished.

"With Hijinx I knew in slightly more detail what was happening because Hollywood, being a new writer, was asking a lot of questions about how to implement particular things, how to make an elevator work, or how to program the Atomic Chihuahua. As a result we knew far more details of that game than we would of a Steve Meretzky game, for example.

## Putting it together

"All our authors do both the programming and the creation of scenarios, the writing of the adventures, but it works out pretty well because the level of programming ability that it takes is not all that high.

"We use a very high-level language and you can learn the rudiments in a few hours. From then on it's just a question of when you get in a sticky spot you come to someone else, like myself or Steve Meretzky, and say 'Well, I've got this rope...how do I do a rope? It can be in two rooms at once if you tie it to something and take the end with you, and can you tie things up with it and drag them around



with you?'

"Then we'll stop and think and say, 'You don't want to have a rope in your game,' and that makes it much easier for the new writers, you see.

"My new game has a chain in it, and it's even worse than a rope in almost every respect you can imagine and it's caused me no end of horror...the number of bugs that have come in on this chain alone would stack from here to there and back again".

## What next?

Having enjoyed Dave's previous games, which as well as Zork were Starcross, Suspect, Enchanter and Spellbreaker, I ask him what his new one will be about.

"I'm afraid we have this stock response to questions about our new products, which is that it's not our policy to talk about them until about six weeks before they're released...but I can tell you a bit about it.

"It's got some very bizarre stuff in it, and it's in a new genre. It's not a Tolkein-style fantasy and it's not science fiction and it's not a mystery and it's not a comedy".

I thank Dave for this detailed information, and ask about the fact that Infocom no longer seems to categorise its games or rate them as to how difficult they are meant to be.

"No, we no longer do that as it seemed to be becoming a little meaningless. Like the new game, Bureaucracy. What is Bureaucracy? It's got some science fiction elements and some fantasy elements but it's mostly just bizarre, so we'd have had to create a special category to put it in".

"It's the third that we've done on our

fairly new 256k system, which will only run on the larger and newer machines.

"The story is set off by your ill-fated decision to move to accept a wonderful new job that involves having to accept a free trip to Paris. So you send a change of address form to your bank, which promptly does what banks always do with that sort of thing, which is to throw it away.

"As a result your entire life begins to collapse into a shambles of total uselessness. You basically have to acquire the means to extricate yourself from this situation of having no money, of having your mail going to the wrong address, having your credit cards cancelled, your computer not working, all the kinds of terrific things that can happen.

## Wandering the halls

"One of the people who tested it - fortunately in the minority - didn't like it very much because he said 'I have enough of this happening at work. I don't want to go home and have it happen too'.

With Hitchhiker's such a success, and Bureaucracy set to follow it, I wondered if there would be any more Infocom/Douglas Adams' collaborations.

"Well, I'm afraid it's not company policy etc etc...but the obvious next thing to do would be The Restaurant at the End of the Universe, and there's always the possibility that that will happen".

On leaving I ask Dave, just for the record, what his job title is at Infocom.

"It's officially written in my job description that I wander the halls, clutching a cup of coffee...and that's about the size of it!"

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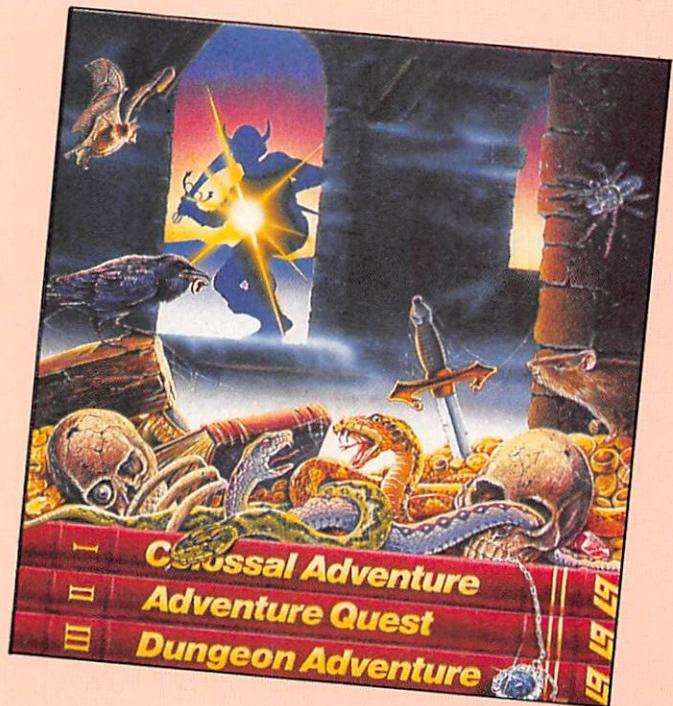
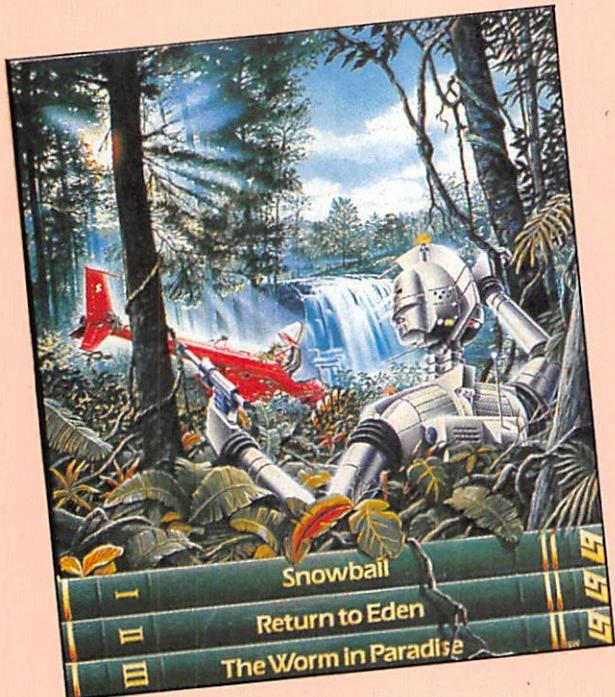
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# Logical functions

LAST month we started to examine the implementation of the Apple User File Control Unit. We continue with that now, discussing the logic of that section of the Unit shown in Listing 1.

The first three functions are concerned with the identity of the Workfile. As we saw when attempting to do a *Whatfile* procedure for the demonstration program *tryit*, the logic revolves round three pairs of variables, *workvid* and *worktid*, *symvid* and *symtid*, *codevid* and *codedtid*.

The *vids* hold volume names, the *tids* hold file names. The *workvid* and *tid* hold the name of the workfile defined by a **Get**. No suffix (for example .TEXT) is stored, and even if a codefile has not been saved, the actual name is stored.

The *symvid* and *symtid* stores the actual name of the text version of the workfile while *codevid* and *codedtid* store the name of the code version (if any). Finally, *gotsym* and *gotcode* tell the system if text and code versions exist.

**GETFILE** defines a file as the workfile which the system must use. The logic is fairly clear. First the function attempts to open the text version of the file. If this is possible, then *gotsym*, *symvid* and *symtid* are set correctly. This process is repeated for the code file.

Clearly, the function expects the filename to be supplied without a **.TEXT** or **.CODE** suffix. **Errno** will only be set to non-zero if the function could find neither a TEXT nor a CODE version, as does the standard Filer.

**SAVEFILE** is slightly less flexible than the standard Filer function of the same name. That is, you must save the file on the root volume, where SYSTEM.WRK.TEXT and/or SYSTEM.WRK.CODE must reside.

Thus, the task consists of changing the name of one or more files, rather than copying them from one disc to another. You can move a file with the Transfer func-

## Part 10 of Stuart Bell's tutorial series covering the unitary approach to program development

tion below. For both text and code versions, the function may use the old name – the name stored in *workvid* and *worktid*, or else it may give the workfiles new names, as passed as a parameter into the procedure.

The choice is selected by the boolean parameter *useoldname*. In all four cases (old/new name, code/text versions), the function *change* is called to change the file name from SYSTEM.WRK.TEXT/CODE to whatever is required.

**NEWFILE:** We noted earlier that the Apple Pascal system sometimes gets a little confused as to whether the workfile has been saved. To avoid getting misled by this, Newfile uses a less than subtle approach of clearing every variable that might suggest that there is a workfile.

Thus, the three pairs of variables are all cleared, the appropriate booleans set to false, and an attempt is made to delete SYSTEM.WRK.TEXT/CODE.

We ignore any error returned by an attempt to delete non-existent files. The boolean return value *newfile* is always returned as 'true' because this function is bound to erase any record of a workfile from the system.

**TRANSFER** copies a file from one disc to another. Note that the filename of the destination file must be the same as that of the source file. Invoke the *change* function after the transfer if you need to do so.

As we noted with *make*, the File Information Block of an opened file is used to check available space. If there is enough

space, the destination file is opened and the file copied one block at a time.

This is a rather slow process and a larger buffer would speed things up somewhat. However, doing so would lead to a much more complex algorithm to handle the situation in which only partially full buffers need to be copied.

Ideally, we could use dynamic memory to provide the largest buffer that a particular configuration permits. An example of this method is given in the new Apple Pascal I.3 manual.

However, the Unit would get even longer and some readers might have difficulty following the rather complex techniques involved.

So, the KISS (Keep it simple, stupid) approach wins, and Transfer works reliably if none too quickly.

**FILEONVOL** simply tests whether a particular file is to be found on a particular volume. This little procedure avoids user programs having to test this manually.

It is related to the *Listdir* function, effectively providing the equivalent of the use of a directory listing to see if a file is on a disc, without giving a full list of the directory.

That completes the *safe* functions – that is those which are not related to functions which require access to the directories.

● We'll leave those to next month, when we'll consider such dangerous things as *Kfunch* and *Zzero* – if this month's instalment seems very straightforward, then the complexities of those functions will more than compensate.

Articles 7 to 12 contain a lot of code, so to ease the fingers we are offering a service. If you send a 5.25in disc to Max Parrott at 68 Chester Road, Hazel Grove, Stockport, Cheshire SK7 5NY we will copy the text files on to it for you.

### Listing 1

```

function getFile(*volname:vid; fname:tid; var
errno:integer):boolean;
var errno2:integer;
begin
  with userinfo.ptr^ do
  begin
    fn:=concat(volname,':',fname,'.text');
    (*$I- *)
    reset(f,fn);
    errno:=ioreturn;
    if errno=0 then begin
      gotsym:=true;
      symvid:=volname;
      symtid:=fname;
      close(f,lock)
    end
    else gotcode:=false;
    fn:=concat(volname,':',fname,'.code');
    reset(f,fn);
    errno2:=ioreturn;
    if errno2=0 then begin
      gotcode:=true;
      codevid:=volname;
      codedtid:=fname;
      close(f,lock)
    end
    else gotcode:=false;
    (*$I+ *)
    if gotsym or gotcode then
    begin
      workvid:=volname;
      worktid:=fname
    end
  end;
end;

```



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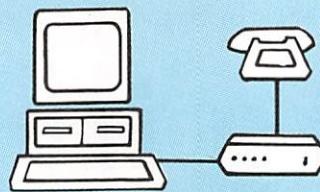
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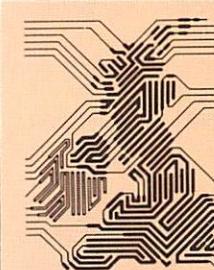
- A Pace: Nightingale + Serial/Parallel card + Data Highway software (£218.15)
- B Miracle: WS2000 + serial interface + Vicom software (£238.65)
- C Pace: Linnet + Serial/Parallel card + Data Highway software (£275)
- D Miracle: WS4000 + serial interface + Vicom software (£299.90)
- E Miracle: WS4000 + Vicom software (£339.95)

##### Apple Macintosh

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**In the third part of his series Duncan Langford explores the Mac's own Control Panel DA**

ONE of the great advantages of working with a Mac is the ability it offers to customise your interaction with the computer. Lesser machines tend to insist upon fixed responses – so long before a key repeats if you press it, then so many repeats in a second, so many cursor flashes a second, a warning beep of fixed volume, and so on.

In this article I'll explain how to help personalise your Mac through the workings of the Control Panel desk accessory and some other special applications. I'll end by showing how your Mac can greet you with the voice of a HAL 9000 computer from the film 2001, speaking an authentic error message.

Although it's been around from the beginning, there are still many Mac users who haven't explored the standard Control Panel desk accessory which is used to set preferences for key repeat rates and other

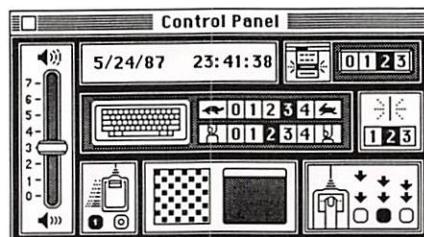


Figure II: The brilliantly modified control panel from the MusicWorks System 4.1

set the current date and time, personalise the desktop pattern, mouse tracking and time delay between double clicks of the mouse.

It also controlled key repeat rate and the delay until a repeat takes place; and, finally, the flashing speed of the cursor, and of menu items when they are selected.

With the advent of the Mac Plus, a new System file was introduced. This time the Control Panel was without the section allowing time and date setting, now carried out only through the Alarm Clock desk accessory.

However, the new system added the ability to connect an AppleTalk link, and, in

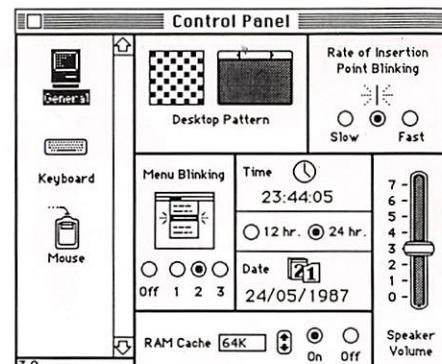


Figure IV: The general view

Mac Plus operates with a cache, do try it. I suggest you set the cache to various sizes, repeatedly run the programs you use most, and test the effects. I find a cache of 64K is plenty, although I know of Mac users who swear by 320K and larger.

Some programs, mostly early ones written for the original 128k Mac, don't like a cache; if you find unexpected crashes occur after you have started using the cache, consider this as a possible cause.

The cache can be used with a 512k Mac, although naturally the amount of memory set aside to be used by it should be proportionally smaller. Remember that memory used by the Ramcache can't be used by anything else, like a Ramdisk or Switcher, so don't make it too big.

If you are running the latest version of the System file, introduced with the Mac SE, the window you will see on selecting Control Panel depends on certain files being available in the System Folder; no longer is all the necessary information built-in.

To show the principal settings (see Figure IV) the file General must be available. Keyboard and mouse settings are controlled, reasonably enough, by files named Keyboard and Mouse, and, if they are not available in the System Folder, that part of the Control Panel will be unavailable, too. Select views of General, Keyboard or Mouse by clicking on their icons in the new Control Panel window (see Figures V and VI).

By the way, another mysterious new icon, Key Layout, is nothing to do with the Control Panel – it's an essential part of the new Key Caps desk accessory. Again, if it is not present, the accessory will not work in the way you expect (see Figure VIII). Normal Key Caps is illustrated in Figure VIII.

# Staying in control

parts of the Mac's background operations.

Perhaps familiarity with other computers leads to the assumption that you are stuck with whatever setup is served by the manufacturer, but for the Mac at least, it just isn't so.

Choosing Control Panel from the Apple menu always displays a window, but

accordance with the style of the Mac Plus, used descriptive words rather than icons (see Figure III). I rather liked a little hare and a tortoise representing fast and slow key repeat rates, but perhaps they were considered unbusinesslike...

The single biggest change for most Mac users was the addition of a Ramcache. This new function allowed a portion of memory to be set aside, through the Control Panel, to hold chunks of data brought in from disc.

The effect is that, if the same area of the disc is accessed frequently, the data need only be loaded once. The next time it is needed, the Mac reads from the cache, not the disc – and operations are therefore far faster.

If you haven't yet explored how your

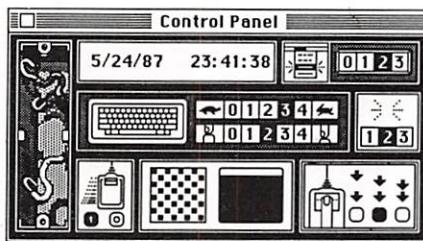


Figure I: The System 4.0 control panel

exactly what is displayed will vary depending upon which version of the System file you are using. The most familiar to long-standing users of the Mac is probably that shown in Figure I, from the Mac's first System file.

I very much liked one changed version of this shown in Figure II, the brilliantly modified MusicWorks control panel, without a volume control. Unfortunately, such modifications really lie outside the scope of this article.

The original control panel was used to

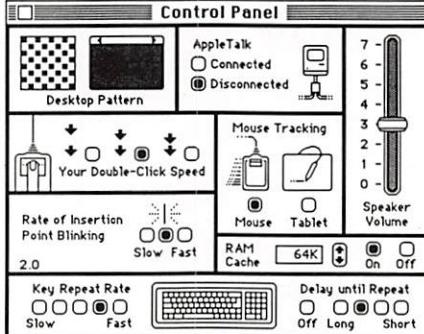


Figure III: Gone are the tortoise and the hare

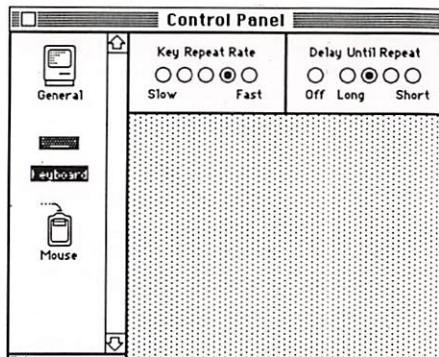


Figure V: The Keyboard settings

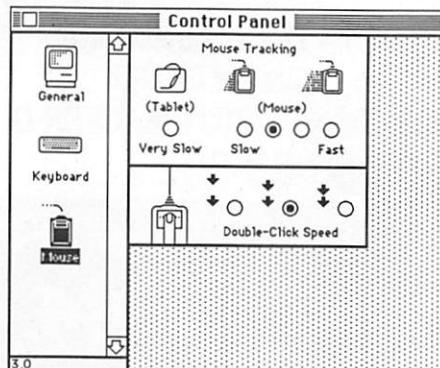


Figure VI: The Mouse settings

Having seen what to expect, we're ready to begin modifications. As always, use a copy of the files, not your originals. It's best to start with a new disc containing just a System and Finder, making sure that if you are using the new System, any necessary extra files needed by it are available.

Start by opening the Control Panel from under the Apple menu, and make sure you have set up all the variables to the level which you personally like best. If you don't like repeating keys, turn them off; if you are a little hard of hearing, turn up the speaker volume.

Write some test text in the Note Pad – do the keys repeat too soon? Not soon enough? Experiment until you are certain the settings are at optimum levels for you.

Do try different desktop patterns, too. Although few Mac users seem to find the Apple supplied version needs improvement, by using the Control Panel you can even try designing your own.

Incidentally, programs exist – Servant is

one – which allow MacPaint pictures to be used as a desktop. I've found this to be interesting, but potentially very confusing, and I don't recommend it.

One area of customising overlooked by Apple is the arrangement of files on the desktop – the way they are laid out, the font and size used to describe them, and other parameters.

For example, I've found that long file names frequently overlap, and have frequently used the old Mac trick of selecting alternate files, by shift-clicking, before moving all the selected files downwards a little to offset the titles.

An application called, appropriately enough, Layout, allows the desktop layout to be permanently modified to be exactly the way you like it, by simply dragging a dummy file (see Figure IX). Layout 2.0 also allows the style and size of the desktop font to be changed, and can produce a desktop arrangement that really is tailor-made. Very easy to use, it's absolutely free.

Moving on to more major changes, it's probably best to start from the beginning. When first starting up the Mac, we normally see a familiar window containing a small Mac icon with the words "Welcome to Macintosh".

This is displayed while necessary information is loaded from disc into memory. Most people do eventually grow rather tired of this window, and it would be nice if our personalised Mac could display something different.

Many items of business and games software display a personalised startup screen while the program is loading.

How do they do it? Well, the Macintosh



always looks for a picture file of a particular format named StartupScreen during the loading process. If it is available in the System Folder, the Mac will display the picture on screen without further intervention.

Such a personalised screen displayed on startup would be ideal for our purposes, although to make things as easy as possible, we should be able to draw this screen in, say, MacPaint, and subsequently convert it to the special StartupScreen format automatically.

This clearly needs a special application and, happily, one has been written. Bill

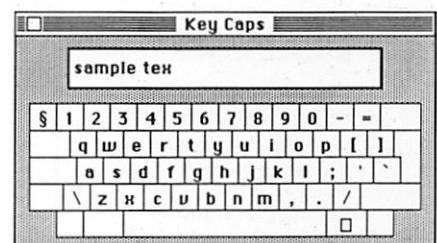


Figure VIII: The normal Key Caps

Atkinson, the man who wrote MacPaint, also wrote a free application called Screen Maker which does just this task (see Figure XI).

Incidentally, should you have the powerful new SuperPaint drawing program, you may have noticed that this, too, has the ability to save pictures in StartupScreen format.

Only the top left 512 by 342 pixels of a MacPaint file can be seen as a startup screen because, reasonably enough, that's the Mac screen size, though this apparent limitation is easily overcome by experiment.

I'd suggest that initially, to see the effect of a StartupScreen, you try converting an existing Paint file before trying to draw your own. After you have converted your Paint file, simply place the newly created StartupScreen in the System Folder and reboot your Mac. It really is that simple.

When you are comfortable about the design, by using Screen Maker you can individualise discs: add company logos, descriptions, or advertising to them. In fact, the sky's the limit. My 10-year-old daughter ▷

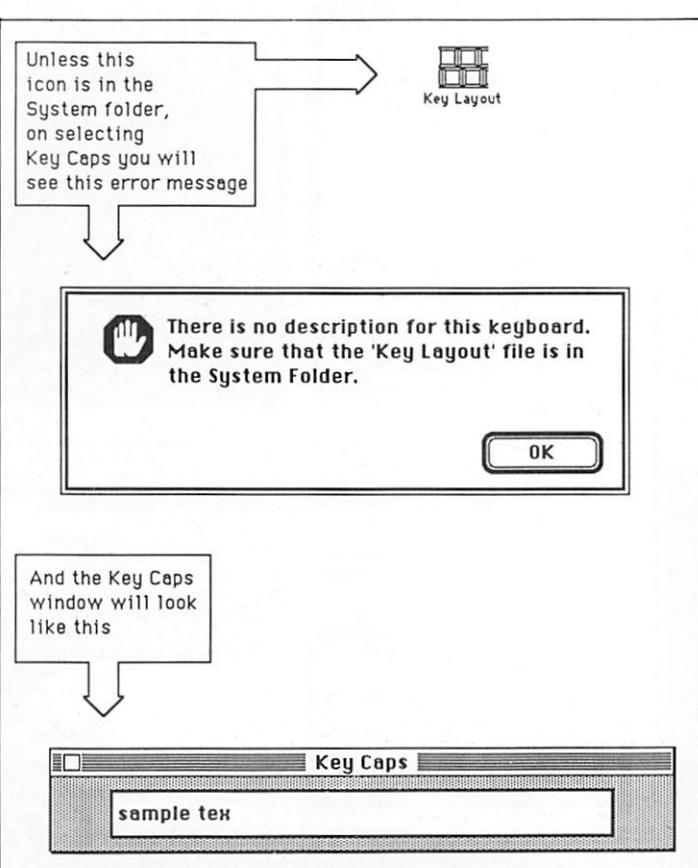


Figure VII: Key Caps now needs a special file

# SUPER PAINT

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Get LaserSpeed for your individual use for £80, or the LaserSpeed Office Pak for £425.

Minimum system requirement: 512K Mac, 800K disk.

The Macintosh Screen Extender...

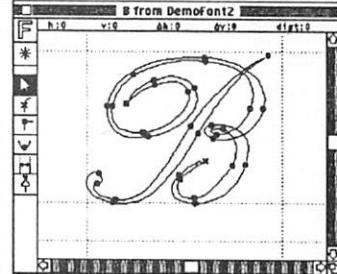
### Stepping Out ...

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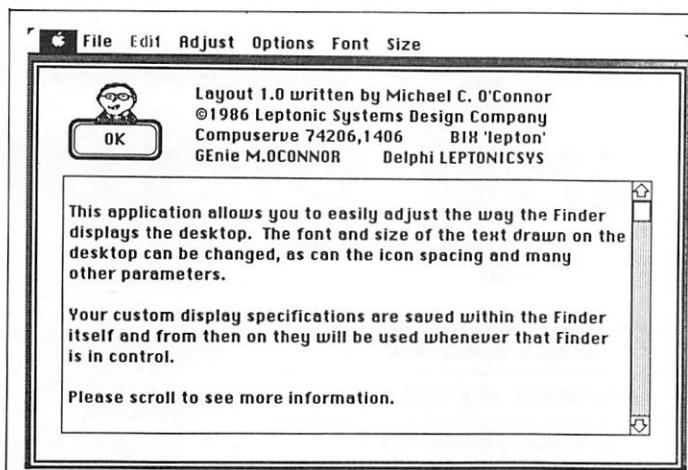


Figure IX: About Layout 1.0



▷ used Screen Maker to construct a Maddy's MacPaint Disc title screen – which impresses her friends no end.

However, you may prefer a different approach. The shareware application Icon Exchanger 3.1 allows that familiar introductory message "Welcome to Macintosh" to be changed to anything you wish, within length limits.

It also lets you exchange the introductory, or DSAT, icon from the little Macintosh picture to any icon you like, allows you to copy icons from other discs and applications, or even to design your own – your Mac could actually display a little drawing of you, with the wording "X's Macintosh".

The same application also allows the Bomb icon and message to be changed easily, in exactly the same way. I rather like 2001's HAL computer, so I reset the bomb icon and message accordingly (see Figure XI).

Another shareware application, DSEdit 2.0, also allows the introductory message and icon to be changed. It will additionally

let you display the icon (which can be one created by Icon Exchanger) at double the normal size – potentially very useful for easy company identification.

Finally, the promised digitised clip from 2001. After all, you've always known that your Mac, like HAL, was "one step ahead of IBM", haven't you?

Although all the shareware applications I have mentioned so far are available from MacTel, the Mac BBS, they can also usually be obtained from local clubs and dealers. The next, SoundInit, can only be obtained from MacTel as far as I know.

A large program, it comes in the form of a compressed PackIt III file. Briefly, to make transmission of files over the telephone easier, the BBS operator uses a shareware application called PackIt III to combine and compress several files into one. When you have downloaded it, running the PackIt III program again turns the package back into individual files (see Figure XII).

The single file Sound.pit (the suffix .pit denotes a compressed file) actually converts into four files – BeepInit, SoundInit, SoundPlay and Sound Doc, a MacWrite file describing the programs.

Sound files are downloaded separately – the one we need is called HAL, and contains digitised speech from that computer.

There are several others, including a rather nice Star Trek clip of Ensign Chekov calling you from the bridge of the Starship Enterprise. Collecting more could become a compulsive hobby.

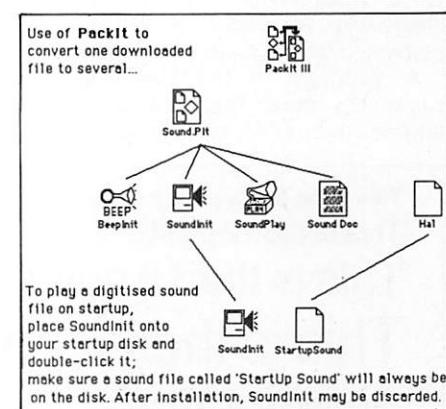
To play the sounds, initially you may use

the application SoundPlay, but to incorporate them into your System file the two files SoundInit and BeepInit are needed. Place them on to your test disc, and simply double-click.

After installation these applications can be discarded, but a digitised sound file must be available. Copy the file HAL to the disc, and rename it StartupSound. Whenever the Mac starts up, the sound is played.

BeepInit works in exactly the same way, but is played whenever the Mac would have beeped.

I wish I could demonstrate to you just how impressive a Mac modified in this way can be, but "I'm afraid I can't do that, Dave."



PackIt shows all the steps

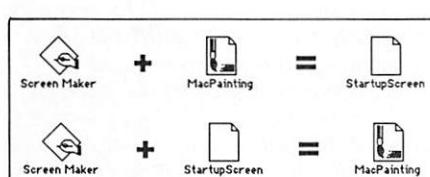


Figure X: Screen Maker works both ways

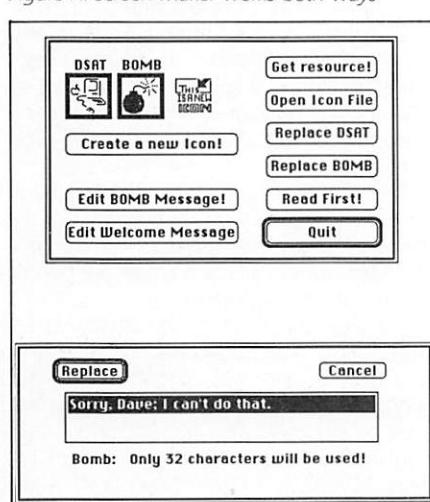


Figure XI: Edit the Bomb message with Icon Exchanger

### Applications mentioned

Application	Author	Available from	Price
DSEdit 2.0 Icon Exchanger 3.1	Drew Davidson John Holder	Shareware Shareware	\$5.00 "whatever it's worth"
Layout 1.0	Michael O'Connor, Leptonic Systems	Shareware	Free
PackIt III	Harry Chesley	Shareware	\$20.00
ScreenMaker 1.0 SoundPlay, SoundInit, BeepInit	Bill Atkinson Fractal Software	Shareware	Free
SoundPlay, SoundInit and BeepInit make use of the digitised sound files produced with the SoundCap hardware/software which is distributed by MacNifty Central.			Free (I think!)

# Words and pictures

THE advent of the IIgs has spawned a new range of software for the Apple II series of computers although, inevitably, much of it is only for the IIgs itself. The new software is very definitely in the WIMPS and WYSIWYG camp and the lessons learnt from the Macintosh approach to life, generally appear to have been handed down from the old to the new.

Word processing programs are very current among the new software and they have always been to the fore on the Apple. I have no idea how many have been pushed on to the market, but only a few have succeeded.

The most recent, successful word processor is Multiscribe (*Apple User*, February and May 1987) and the IIgs version of this is very much what you would expect given the IIe/c version and the extra facilities of the IIgs.

GraphicWriter (here reviewed as version 1.1) is in the Multiscribe mould, with pull-down menus, windows, and icons but has the extra facility of graphics. Text and graphics may be imported into the word processing document or created from within GraphicWriter and, as long as an ImageWriter II is used, up to 48 colours can be printed on the page.

A program with GraphicWriter's capabilities sounds good enough to make anyone's mouth water. So I sat down to

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**Max Parrott**  
**reviews a package**  
**which promises**  
**the best of**  
**both worlds**

---

learn how to use it and on the basis of half an hour's work (it really is that easy to use) I can say that this is definitely the word processor to buy – but not in this version. Wait until version 2 or 3 is available. On second thoughts, wait until version 3 or 4.

Problems with the program fall into two areas:

First, the program is easy to use, but it is rather slow at times and several features which I expect in a word processor are not available.

Second, and fatally as far as I am concerned, the printing is not always correctly carried out.

Interestingly, the manual has two update slips. The first points out a few changes between version 1.0 – for which the manual was written – and version 1.1, which is currently in use.

The second slip says "Due to the delay of printing software being developed by Apple Computers ... we at DataPak were forced to write our own print routines. When Apple Computer releases their printing software, we will incorporate them into Graphicwriter. Because of this delay, some of the print features are not currently active. We will provide a free upgrade to owners of Graphicwriter version 1.1."

The printing features which are offered are the ImageWriter, as a black only or as a colour printer, the LaserWriter, and a daisywheel printer. The Laserprinter is the option not currently active.

The daisywheel can only handle normal printing (no graphics) so that effectively, the only printer supported is the ImageWriter (ImageWriter II only, if you want colour).

With the ImageWriter there are three main modes of printing. Draft uses the standard font and treats the ImageWriter as a normal, text-only printer. The intermediate or standard mode prints a page in about one-and-a-half minutes, giving a printout which is rather pale but a good representation of what was on the screen, both text and graphics.

---

**Better to wait**

The last mode – high resolution – takes about six minutes to print a black only page (longer with colour as well) but gives a startlingly good output (see Figure I).

It is, however, marred by two things. The program has trouble calculating where to print, and when several spaces or tabs occur together in a line it can get the end of the page wrong, usually printing two or more lines more than required.

Curiously enough, the standard print mode does not make these mistakes – compare Figures II and III. That is why I say wait for version 2 or 3, when a new set of printing routines should cure these problems.

The reason why I say perhaps it would be even better to wait for version 3 or 4 is that the word processor lacks some important facilities, ones which I think are necessary in a modern program.

For example, it lacks the ability to use superscripts and subscripts. There are no find or find and replace commands, and very few tab positions. There are just two tabs, plus one decimal tab and a left and a right margin and a paragraph indent tab. And keyboard control of functions is limited to say the least.

On top of this I would like the program to be quicker when reformatting text, and

**This is the 9 point which is the smallest size.**

**This is the 12 point**

**This is the 18 point**

**This is the 24 point which is the biggest size.**

**You cannot apparently change size in the line without moving it to accomodate the largest size in it.**

**Helvetica**

**Bookman**

**Script**

**9 point**

**9 point**

**9 point**

**12 point**

**12 point**

**12 point**

**18 point**

**18 point**

**18 point**

**24 point**

**24 point**

**24 point**

Figure I: The fonts and sizes available: Note the poor tabbing.

I'd like to be able to position text to pixel or near pixel accuracy in the drawing modes.

Before describing all the good things about the program – and there are many – I must mention one more nasty.

The program comes on a protected, 3.5in disc and you are expected to pay another \$15 and fill out the registration card to get just one backup copy directly from the manufacturers. Quite who handles the postage costs, especially from abroad, is not mentioned.

### Easy to launch

Now I don't know how long 3.5in discs last, but there is no way I would trust my weekly output of words and pictures to just one working copy. And in my experience the most widely bought programs are those which are not copy protected – just look at WordStar, AppleWriter, AppleWorks and Multiscribe in the field of word processing alone.

The program runs under Prodos 16 and is launched from the Apple Launcher v1.1.

This may not be familiar to UK Ilgs users who were given MouseDesk v2 in place of the launcher, but it is easy to use and "intuitively" simple. The slim manual with GraphicWriter explains its use.

The disc also contains a program to install GraphicWriter on to a hard disc, and another to remove files from disc.

Once the program is run, the screen displays the main writing area, a ruler, and vertical and horizontal scroll bars. There is a drawing aids palette at the bottom of the screen and a Menu bar at the top with the Apple symbol, File, Edit, Font, Style, Format, Page, Display, Regions and Goodies as the options.

The mouse will pull down each menu in turn as long as the button is depressed, and will move from menu to menu if moved sideways. Moving vertically highlights an option if available, and releasing the button will select it.

In other words the mouse and pull-down menus are fully implemented, as on the Mac. Unlike most Mac programs, however, very few options are available via option or control keys and this I consider to

be a fundamental mistake.

I like using the mouse because it sometimes frees the mind from thinking, but I also like using the keyboard if that is where my fingers are at the time.

There are three fonts: Helvetica, Bookman and Script, each available in four sizes: 9, 12, 18 and 24 point. Figure I shows these printed at the highest resolution (note that GraphicWriter got the tabbing wrong – it was correct on screen).

### Mixed styles

Each font, at each size, can be used in plain or italic text, emboldened and/or underlined. The text may be left, right fully, or centre justified in single or double line spacing.

Text styles and sizes may be mixed on one line which will move vertically to accommodate the largest size. Page breaks are shown as a red line and may be forced if required. A header and a footer may exist if wanted.

The smaller sizes do not show up well ▷

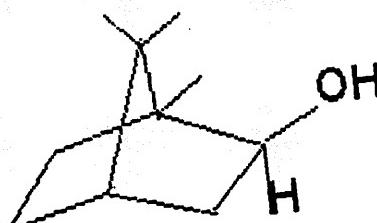
Figure III: High resolution output:  
Note the poor registration between text and graphics.

Figure II: Standard text and graphic output

Note that double space is being used but about superscripts and subscripts? Well, is an interesting point. We can introduce and diagrams but real word processing will be a pain in the at this size.

this could be an inset in the smallest size and it is impossible to read.

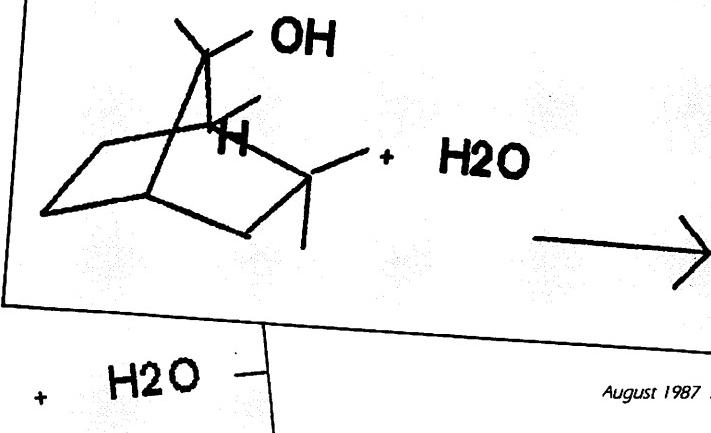
Now we go back to double space but problem with an extra carriage return in the text.



Note that double space is being used but what about superscripts and subscripts? Well, that is an interesting point. We can introduce pictures and diagrams but real word processing will be a pain in the at this size.

this could be an inset in the smallest size and it is impossible to read.

Now we go back to double space but there is a problem with an extra carriage return/line-feed in the text.



< on the IIgs screen, so this may be shown "vertically stretched", in which case they are pleasantly legible. An option may be selected to show the page on the screen in full.

This is not always faithful to the selected margins and paragraph indents but is nevertheless extremely useful because sections of text and graphics may be dragged around the full page and repositioned giving a PageMaker like feel.

Some of the program's power comes from setting regions (which could be columns on the page) and selecting objects which can be grouped and then moved together. Objects may be rotated in 90 degree steps, but grouped objects do not rotate together – each moves around its own origin. Regions may be fixed in size and framed or left open ended.

A region can contain text and graphics objects, or may be designated as canvas in which case freehand (mousehand?) drawing is allowed in the area. To help, you can select ellipses, triangles, rectangles and curved corner rectangles which may be positioned and sized with the mouse.

They can be drawn in different colours and thicknesses and can be filled. There is a paintbrush option, but no aerosol and, surprisingly, no rubber. The only way I could find to remove my errors was to select white as a colour and paint them out.

Paint can be defined as heavy (cover everything), watercolour (let that underneath show through), and dye (changes anything black to the selected colour). Colour may also be solid or dithered. The screen may be shown in "living colour" or as "black & white" which uses just that plus shades of grey.

### Leisurely reformatting

A canvas region can be filled with a picture generated from outside GraphicWorks and there is a scrapbook in which pictures may be saved. Artwork from the scrapbook can be copied into the more usual Clipboard and then into the document. Rudimentary colour editing can be done by removing the IIgs primary colours from the screen.

Editing involves cutting, copying and pasting via the Clipboard though it cannot be saved. There is an undo facility but it is not always available.

Reformatting, deletion and other changes are carried out by highlighting a block (using the mouse to sweep over it or by double clicking on a word) and then selecting the required option from a pull-down menu. Sometimes a keyboard equivalent is given, but not often enough in my opinion.

Reformatting can be tediously slow. In

fact, even highlighting a block which stretched over 12 pages took 40 seconds. Importing this text (created as a disc text file from Appleworks) took so long that I gave up timing, but at least it did it.

The idea of a word processor with inbuilt graphics abilities is so good and so convenient for a wide variety of purposes that it is obvious that only lack of technology has held back development. Macintosh word processors are beginning to approach that ideal and clearly the IIgs is not far behind.

In this program, however, the power expected of a modern word processor has been sacrificed to get in the graphics. I think that a buyer should realistically expect search and replace, super and subscripting, half-line spacing, multiple line spacing, fast formatting and many tabs. A dictionary and a thesaurus should also be in a modern package and all of these are missing from GraphicWriter.

A shame, but hopefully the next version...

**Product:** GraphicWriter version 1.1.  
**Price:** £109.95 or bundled with Notes'n'Files £189.  
**Requirements:** IIgs with at least one 3.5in drive and 512k of memory, ImageWriter (preferably ImageWriter II) printer.  
**Manufacturer:** DataPak Software, 14011 Ventura Boulevard, Suite 507, Sherman Oaks, California 91423.

# The truth about TELEX

### How much does it cost to go on Telex?

You could go the conventional way and buy a dedicated Telex machine. The cheapest will cost you £1,604 (the Whisper), the dearest £2,892 (the Cheetah). You will also need a separate telephone line, costing £101 to install, plus £404 a year rental. That's a total outlay over the first year of a minimum of £2,109. (All prices include VAT.)  
*Or you could do what more and more Apple users are doing – use your Apple II or Macintosh to double as a Telex machine. And just use your ordinary telephone!*

### How do I turn my Apple II or Macintosh into a Telex machine?

All you need is a modem and appropriate communications software (see the advertisements in this issue), a telephone, and a subscription to MicroLink. Telex is just one of a growing number of services available to Apple users on MicroLink. With it you can also read the news as it happens, go teleshopping, create your own closed user group, send telemessages and electronic mail right round the world, download free telesoftware programs directly into your micro... and much

### But why use Telex?

Because it's a standard means of instant communication between businesses. Today there are 150,000 Telex machines in use in Britain – and more than 2 million worldwide. It's used to dramatically speed up business communications – just as quick as using the phone but far more efficient, because you have a hard copy of every "conversation" for your records.

But there's a big bonus you get when you use MicroLink for Telex that the conventional way doesn't offer.

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**How to join:  
See Page 17**

# Conducting from the keyboard

A MAIN advantage of the Apple IIgs over the Apple IIe is its sound, and one program that utilises this special feature is The Music Studio, designed and developed by Audio Light.

It enables you to write music on the screen and to play it back through the micro, or through any Midi compatible musical instrument or synthesiser. The manual of 120 small pages is easy to understand. There is no index, but the table of contents is adequate enough.

The disc is copy protected, and the manual warns you not to try to save files to it – in any case, it has only two free blocks. The program takes almost two minutes to start up. Thereafter, it does not refer to the disc unless you wish to change to a different set of instruments.

The main composing screen shows a bass and treble staff which can display up to 24 columns of notes, with up to 15 notes in any one column. The staff scrolls to the right, or to the left when you wish to add more notes. It really needs a colour screen because colour is used to distinguish the notes for different instruments.

A piece of music is said to be limited to 8,000 notes, but I managed to enter 2,000 columns with five notes in each. Playback time depends on the tempo, the size of notes and whether any passages are repeated. Without repeats, it could be from five minutes to over an hour.

Virtually all operations on Music Studio are controlled by the mouse. The only time you need the keyboard is to add lyrics to the music or to respond "Y" to a few prompts where a hasty click on the mouse might lead to disaster.

## Colour coded

The first step is to select one of the 15 instruments, by pointing to the instrument palette symbol above the staff. When you press the mouse button, a menu of 15 numbers drops down, each in a different colour.

As you drag the mouse to highlight successive numbers down the list, the name of each instrument is displayed in the top centre of the screen. To select an instrument, release the mouse button while the appropriate number is highlighted.

Thereafter, all notes written on the staff are in the corresponding colour. When you play the music back, the colour of each note determines the instrument on which the note is played.

## **Geoff Wood reviews a versatile Apple IIgs package aimed at the amateur musician**

There are four ranges of instruments, held as files on the disc. The default range is called Jazz and consists of piano, short piano, sustained piano, string bass, short bass, pluck bass, mute bass, tenor sax, alto sax, two drum kits, vibes, and three guitars.

If you want a different selection of instruments, you can load one of the other three files in from disc. One is called Classical and consists of violin, viola, cello, string bass, flute, oboe, clarinet, bassoon, harp, piano, acoustic guitar, celeste, pizzicato, vibrato flute and horn.

Rock consists of phaser, electric bass, slap bass, guitar, guitar aw and wa, two electric pianos, hi-hat, open and closed, simmons, tom tom, kick, clavinet and echo.

The last range is Voices: The "instruments" here make sounds like a backing group. You can also design your own instruments or modify existing ones.

Before entering the notes, you may wish to set the key, time, tempo and volume. Along the bottom of the screen are symbols to set these features, and when you click on the key box, a menu springs up offering a choice of the 15 keys – just drag the mouse to select a key.

Similarly, when you click the time signature box, a menu springs up offering a choice of seven times.

To set the tempo, there is a slider control offering a range from 56 to 200 crotchets per minute. As you drag the mouse to move the slider, the chosen number is displayed alongside a corresponding musical term ranging from grave to prestissimo.

There is a similar slider control to set the volume: As you drag the mouse, the display shows the abbreviation for the setting.

Unfortunately, you cannot have two different settings of the key, time, tempo or volume in one piece of music, which is a serious shortcoming. You can change the settings, but any changes affect the whole piece.

To put notes on the staff, you first select the duration of the note by pointing to a crotchet permanently displayed above the staff.

Pressing the mouse button drops down a ▷

Figure 1: The Star Spangled Banner – sample output from Music Studio

Figure 1 shows a sample output from Music Studio. It displays two staves of musical notation on a grid. The top staff begins with a treble clef, a key signature of one sharp (F#), and a common time signature. The lyrics "Oh say can you see by the dawn's early light," are written below the staff. The bottom staff begins with a bass clef, a key signature of one sharp (F#), and a common time signature. The lyrics "what so proudly we hailed at the twi light's last gleaming? whose broad" are written below the staff. The music consists of quarter notes and eighth notes.

menu displaying six notes of different duration ranging from a breve to a demisemiquaver. You drag the mouse to select the note you want, then position the selected note on the staff.

As you move the note through the staff, you have the option to hear the notes being played, which helps you to position the note by ear as well as by sight.

When the note is in the correct position, click on the mouse to display it permanently. To delete a note, position the pointer over it and click once.

You can position as many notes of the chosen duration as you wish, then change to one of a different duration with the note menu. Unlike many Macintosh programs, Music Studio offers no keyboard shortcuts. It would have been easier if, say, the up and down arrow keys had allowed you to change note duration.

Before selecting a note duration, you can use another menu to add a dot to the note to increase its duration by half. From the same menu you can also add an accent (to play at maximum volume) or a triplet symbol.

### Moving notes

Another menu allows you to add a sharp, flat or natural to a note. You can also add ties to play two or more consecutive notes as one.

There is also a menu of six rests corresponding in duration to the six notes. Again, these can be enhanced with dots to increase their duration by half.

Having entered some notes, you can insert vertical measure bars. However, the program does not calculate the duration of a bar and insert the measure bar for you, so it is possible to put them in the wrong place.

To play the music back through the computer you have two choices. If you click on an ear symbol at the bottom left of the screen, the tune is played back but the notes do not move on the screen.

If you click on a note symbol below the ear symbol, the notes move across the staff as the tune is played, but the positions of the measure bars are not shown.

Normally, all the notes are played back, but you can set each instrument to one of four tracks and play back one at a time. This feature is useful, for example for editing the bass line or drum track.

You can edit the music by deleting and inserting notes one at a time, but there are various shortcuts.

A menu at the top of the screen offers a choice to insert blank columns, copy a block of music, move a block, change instruments, lengthen or shorten the duration of notes, transpose up or down a step at a time, or to add repeat markers. The last feature means that you can repeat any bar or phrase, or even the whole piece, up to 127 times.

Finally, you can add lyrics to the music, up to three verses. If the words will not fit into the space available, you can open up spaces in the music so that the words are positioned under the corresponding notes.

When you add lyrics, the maximum number of notes in a piece of music is reduced.

Music Studio calls each piece of music a song, regardless of whether it has lyrics. You can save each song as a binary file on a disc, giving it a suitable name with the suffix .sng.

When you use the file menu to load in a song, it lists only those files with this suffix. Files that contain the ranges of instruments are known as sound files and bear the suffix .snd.

The disc comes with 20 songs which you can load and play. They range in duration from one to four minutes, and in style from a Mozart requiem to original compositions in jazz and rock.

Music Studio also features what it calls the Music Paintbox, an alternative to the main composing screen. Instead of using standard musical notation, you paint notes on to the staff as coloured rectangles. The size of the rectangle determines the duration of the note.

When you switch from the main composing screen to the Music Paintbox screen and vice versa, any music is translated from one notation to the other.

I could see no advantage in the Paintbox, except that it is easier to switch instruments because the palette of 15 colours is permanently displayed at the foot of the screen. On the other hand, it takes longer to erase a note because you have to click on a note eraser symbol first.

If you want to design your own instruments, Music Studio offers powerful facilities, even while you have a piece of music in memory. Here the main composing screen is replaced by the design instruments screen.

### Sound envelopes

Instrument sounds can be described in terms of their pitch, amplitude (volume) and duration. The change in a sound's volume over time is called a sound envelope. Music Studio lets you specify the volume of a sound over time in the form of a sound envelope graph, displayed across the centre of the design instruments screen.

The graph is divided into up to seven segments, each representing a change of volume over time. It is labelled ASDR to signify Attack, Decay, Sustain and Release.

The attack is how a sound begins: A piano has an attack louder than the rest of its sound envelope because, after the key is struck, the sound gradually becomes softer, never louder.

Decay is whatever happens to the sound immediately after the peak of the attack, while Sustain is the period when the decay levels off and the tone is held evenly. A piano has no sustain whereas a trumpet has one as long as the player keeps on blowing.

Release is the end of the sound envelope, and represents how a tone stops.

The total time (in seconds) for a sound envelope is shown at the right of the graph - as you move the pointer through the graph, a panel below shows the time at its

position. At the left of the graph, a panel displays a three digit number representing the volume of the segment.

Designing new instruments really means modifying existing ones. First you select an instrument from the current range, then modify the duration and volume of each segment of the sound envelope. At any stage, you can click on the word "Test" to hear the sound played up and down a scale.

You can add regular pitch variations to a sound to create a vibrato effect. The depth and rate of the variations can be set to give different sounds.

### Midi parameters

If you have a stereo card for your micro, you can assign an instrument to either the left or right channel. You cannot assign an instrument to both, and the default is the right channel.

You can also set the octave range of an instrument. All instruments have a range of five octaves which can be adjusted within an eight octave range.

However, the staff can only display notes over five octaves, so when you set an instrument to play above or below this, the notes are transposed up or down depending on the setting of the octave range.

When you are satisfied with the new sound, you can rename the instrument to distinguish it from the previous one and save the current range under an appropriate name. You can also copy instruments from one range to another.

One of the options of The Music Studio is to set the Midi parameters. These include assigning instruments to the Midi channels, setting the octave range and selecting presets.

The Midi parameters are saved with the song in which you use them. The manual gives instructions for setting up a Casio CZ-101, but it should not be difficult to adapt them for other equipment.

However, Music Studio does not record back when you play your Midi linked keyboard. Thus it cannot be used to compose at the keyboard and then print out your composition: It can only be used to play back pieces you have composed on-screen.

The Music Studio is not really suitable for professional musicians. It has limitations, such as the length of a piece of music.

And, more important, you cannot change key, time, tempo or volume within a piece. There is no way of setting it to play several pieces in succession, and you can append one song to another only up to the limit of 8,000 notes.

Nevertheless, Music Studio is versatile, easy to learn and use, and reasonably priced. It could give many hours of pleasure to amateur musicians, especially those interested in composing or in creating new instruments.

**Product:** Music Studio

**Price:** £39.99

**Supplier:** MGA Microsystems, 140 High Street, Tenterden, Kent TN30 6HT.

**Tel:** 05806 4278

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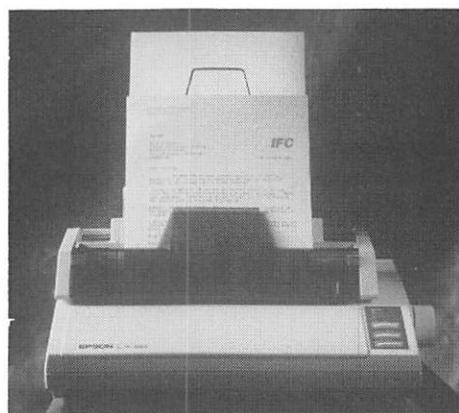
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# THIS MONTH'S SUPER SAVERS

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Specifically designed to give you reliable printing performance to a continuously high standard the LX-86 dot-matrix printer combines selectable draft, correspondence and graphics print together with printing accuracy, speed and an additional range of useful features. All at a price which represents unprecedented value for money. Stylish features.

Just some of the features which have established the LX-86 as one of the best-selling printers are a draft printing speed around 120 cps; a built in Roman font for correspondence print; Pica and Elite character spacing for all drafting work; graphics capabilities; built in buffer; a standard parallel interface and a full repertoire of useful and attractive typestyles.

LX-86 quickly produces high-definition charts and diagrams in combination with text in typestyles of your choosing — including sub and super-script, enlarged and condensed, emphasised, double-strike and italics.

The LX-86 carries out a range of word processing functions — including highlighting and underline.

For continuous stationery, the tractor feeder enables the LX-86 to handle anything from pre-printed forms to self-adhesive labels just 3 inches wide.

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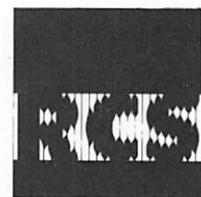
HyperDrive FX/20 improves the power-up time of a MacPlus by 66% — and boots directly from the hard disk. A MacPlus with the FX/20 can load Blyth's Omnis 3 over one and a half times faster. Aldus' PageMaker over twice as fast. And Microsoft's Excel two and a half times faster.

These and other significant reductions in work time are matched by a corresponding increase in the capacity for work. The FX/20's 20-megabyte storage capacity can accommodate the data that would otherwise occupy up to 50 diskettes. And you can add up to seven peripherals on a single SCSI bus.



But the FX/20 doesn't just provide access to information faster and in greater quantities. It's also the first external hard disk that comes with software to help you handle it more intelligently.

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# At your command...

THE Stemko system enables handicapped people to control all kinds of appliances – typewriters and telephones are just a couple – by spoken commands.

Based on an Apple IIe, it has been developed in the Netherlands at the Het Roessingh rehabilitation centre. The Stemko's aim is to help the handicapped especially those with muscular dystrophy, and spastics – in other words any people with little or no function in their extremities.

The user gives commands via a microphone, optionally mounted on a wheelchair. The microphone is connected to a speech recognition system which translates the commands into signals suitable for the computer.

The system software is completely menu driven, informing the user of the status of the process being carried out via the monitor so that he knows what is going to happen.

All applicable commands are shown on the menus and the control modules activate the appliances as ordered.

The speech system is able to recognise up to 80 different commands. However, recognition is user dependent which means it is restricted to one person's use.

As a first step it is necessary to give the STEMKO a vocabulary by speaking all possible commands a number of times into the microphone so that the users voice patterns are memorised by the computer. Normally this is repeated every three months, to take changes in the voice pattern into account.

In use the Stemko compares all spoken commands with the patterns held in

**Martin Keesen meets  
the Stemko, which  
offers a speech  
controlled environment**

memory: If a command is to be recognised, it really has to be made distinctive.

The system is able to control almost all kinds of appliance for each new one another control module is added. From the user's point of view, the top 10 appliances are:

- Alarm systems where built in relays can make any system operable.
- Switches are controlled via the normal domestic wiring and allow lights to be dimmed and appliances to be switched on and off. Normal use of the switch is unaffected.
- Television (with teletext) on a standard remote control set, using the normal infra red controller is controllable with the Stemko.
- Audio equipment may be controlled like a television set, although unfortunately the volume is generally not controllable. One great advantage is that the system can be used to operate a cassette recorder to play a speaking book.
- Word processing is incorporated into the Stemko system, which makes it possible to print and edit. The text is spelt out character by character, using either the normal alphabet or more commonly a group of

'spellwords'.

The words may be freely chosen which allows for optimal adaptation to the user's vocal and mental abilities. The advantage of being able to generate well laid out text and of gaining privacy cannot be emphasised enough.

- Telephone dialling is automated with a set of commonly used numbers being stored in the machine. The normal functions of the telephone are still available and an optional loudspeaker can give freedom of movement.
- Page turners are easily controlled by the Stemko, allowing all manner of books and magazines to be read.
- Video recorders may be controlled like a television set and are proving popular.
- Electrically controlled doors and curtains are relay – driven from the command module, allowing the user a more normal control of his environment.
- Drawing machines (plotters) may be controlled by turtlegraphics. The user specifies line lengths and angles, and can create simple or even quite complicated drawings.

All operations start with the Index page (shown in Figure II) which indicates all the appliances. Then, if for example the user wanted to control the television and a light, he would say "television" to start that option. The Television page will appear and indicate all possible actions. Saying "on" puts the set on, "channel" displays all possible channels and saying the appropriate number switches the set accordingly.

Other functions are similarly controlled. ▷

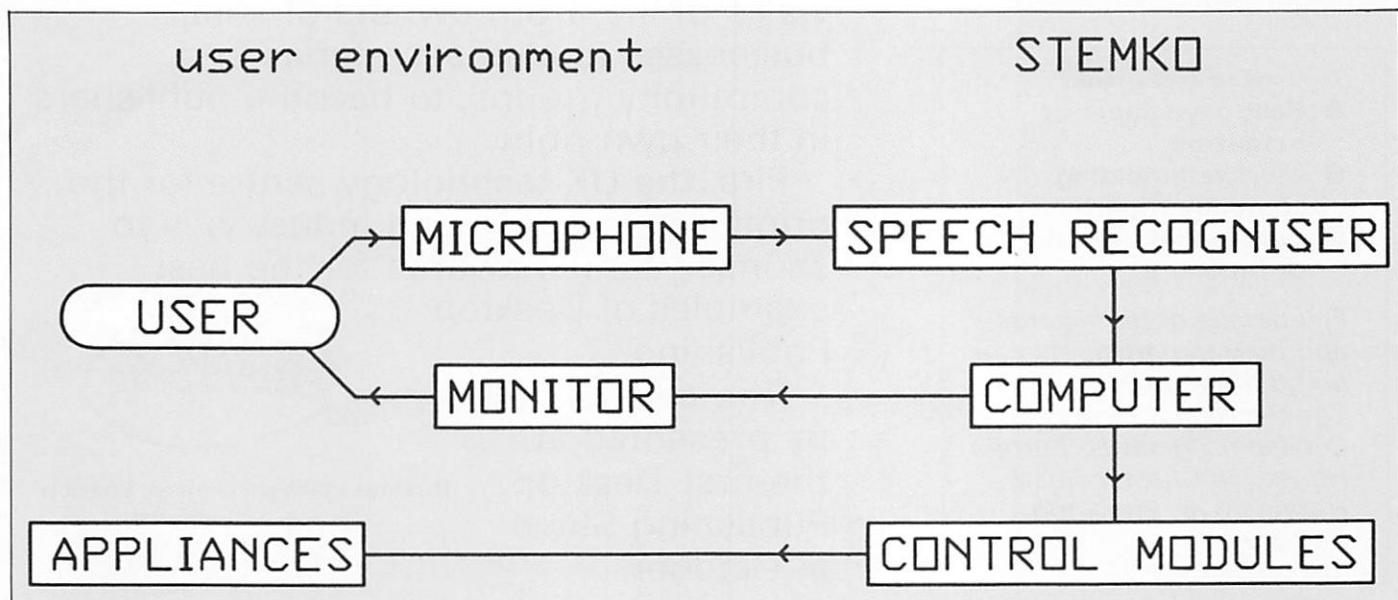


Figure I: Schematic diagram of the Stemko

▷ The user can now dim the light by returning to the index page and saying "index" then "lights". The lights command page (Figure III) will show all possible commands for control of the lights.

Other appliances are controlled in much the same way. The system is flexible enough to meet the needs of most users but the principle of operation remains the same.

Because of its flexibility it is hard to cost a modular system like the Stemko but it will likely be somewhere between £7,500 and £10,000. Two days of training and a service contract are included when the system is installed in the Netherlands but the price does not include the cost of the appliances themselves.

Experience shows that the groups of people most likely to benefit from it are those with high level lesions, low progressive multiple sclerosis, low progressive amyotrophic lateral sclerosis and spastics who can make reproducible sounds. These are normally spoken commands but it is possible to use sounds without any specific meaning.

*The Stemko is made and serviced by Huka Developments B.V. of Oldenzaal, The Netherlands.*

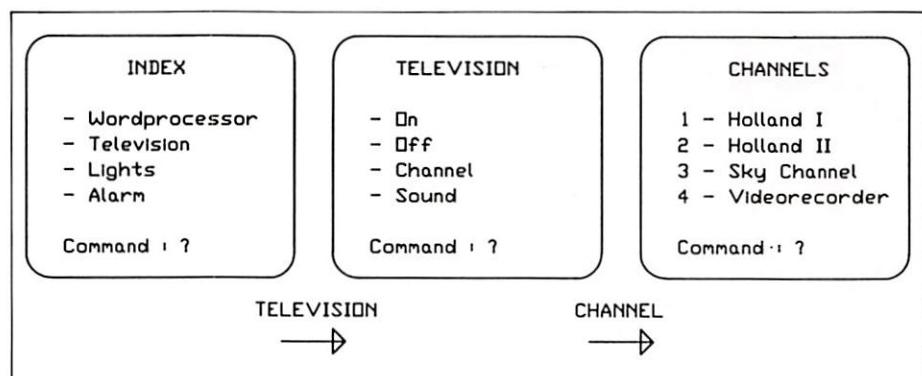


Figure II: Controlling a television set

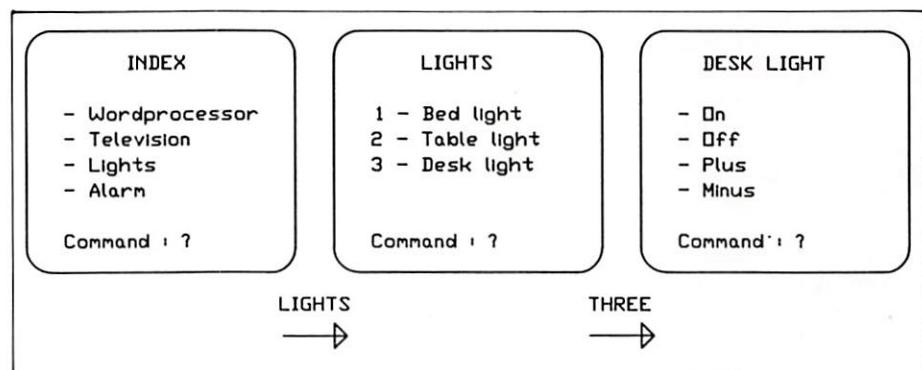


Figure III: Controlling a light

## DESKTOP PUBLISHING AWARDS 1 · 9 · 8 · 7

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Desktop Publishing is the biggest growth area in microcomputing today. Many of the UK's top graphic designers have embraced it, harnessed its tremendous potential, and produced extremely eye-catching layouts.

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*Desktop Publishing SHOW 1987*

**Business Design Centre, London**

Thursday October 15  
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# Point to point

APPLEWORKS is a popular program because it offers spreadsheet, database and word processing in one integrated program. But it doesn't offer graphics. However, if you want to draw graphs from data in your Appleworks spreadsheet files, you can now do so – with Visualiser.

I've previously (*Apple User*, June 1986) reviewed PB1 Software's GraphWorks for drawing graphs and charts from AppleWorks spreadsheet files. I found it had some limitations, especially in formatting the graphs.

Visualiser is from the same software house, but by different authors. It draws much better graphs – and overcomes the problems of GraphWorks.

Visualiser is designed for the Apple IIgs, but there is also a version for the Apple IIe and IIc. For the Apple IIgs the program is supplied on a 3.5in disc and is not copy protected. It comes with a 30 page manual that covers all the basics but is not fully comprehensive.

Visualiser needs at least 512k of ram, so you must have a memory expansion card with at least 256k installed. Ideally, you should also have a colour monitor and a colour ribbon for your ImageWriter II.

Whereas GraphWorks presents menus similar to AppleWorks, Visualiser presents screens like a Macintosh, with pull-down menus, dialog boxes and scroll bars, all operated by the mouse.

After booting up (which takes just under a minute) you see a pale blue screen with a menu bar above showing the words File, Edit, Graph, Axis, Options, Lines and Window.

The first step is to use the File menu to start a new file or to open a file already on disc. Choosing New opens a blank worksheet with 1000 rows and 127 columns. You can enter words or figures in the cells, but if you enter formulae they appear as labels. Any worksheet you create can be saved to disc, but only as DIF file

## **Geoff Wood tries out a package that adds graphs to spreadsheets**

which, of course, can be loaded into AppleWorks.

Choosing Open causes the program to access the disc and display a list of its files and folders. You can change to another disc drive if you wish, and open a file or a folder by clicking twice on its name.

Visualiser does not list AppleWorks word processor and database files, but it does list other Prodos files such as Apple Writer 2.0 or FlashCalc. In fact it will load in DIF files created by FlashCalc or other spreadsheet programs.

However, if you try to open a file that is not an AppleWorks spreadsheet file or a DIF file, an error message appears.

Unlike AppleWorks, Visualiser allows you to have only one file at a time in memory. With large files, it does not hold the whole file in ram but accesses the disc for the parts it requires.

## **Editing cells**

The appearance of the worksheet is more akin to Macintosh than AppleWorks because it uses the graphics screen. You can use the scroll bars to move the matrix of cells up or down or sideways.

Alternatively, if you place the mouse arrow outside the matrix of cells and hold the button down, the matrix moves in the appropriate direction. Scrolling is rather slow compared to AppleWorks, especially for large files, but not unacceptably so.

You can edit the contents of any of the cells of a worksheet. However, if you change values in cells that affect formulae, the answers will not change – Visualiser

loads AppleWorks files as though they are DIF files with labels and values but no formulae. You cannot change the column widths on a Visualiser worksheet, except via AppleWorks.

If your AppleWorks worksheet has cells that are formatted with integer or decimal places, the numbers will be displayed as formatted. However, if you save such a file as a DIF file and then load it back, the numbers will be displayed with as many significant figures as will fit in the column.

I tried this with some simple worksheets and had no problems, but some more complex worksheets were not saved properly and reloaded with zeros in some cells. In practice, this may not matter to most people.

To draw a graph, you select the cells whose values you wish to plot. Selection is made by clicking on the first cell then dragging the mouse until all the cells are highlighted.

You can also use shift click to select a block, as with Macintosh Multiplan or Excel. You can highlight a single row or column, or a complete block of cells. Visualiser can cope with up to 52 points and up to 24 ranges in a graph.

The next step is to use the Graph menu to select one of the eight types of graphs, namely, 3D Pie, Pie, Bar, Point/line, Area, High-Low, Scatter and Regression. In a few seconds, the graph is displayed in glorious colour.

Three dimensional pie charts take slightly longer to draw than flat ones, but they do look more impressive. Bar charts normally come up as flat columns, but you can select four alternative types from the Options menu – three dimensions with shadowing, three dimensional columns overlapping, standard format overlapping or stacked bars.

Point/line charts are normally displayed with the points for each value joined together by lines for each variable, though you can suppress the points or the lines. You can choose to have tick marks that cross the axes, inside or outside the axes, or no tick marks at all.

Initially, the graph may appear too small. But if you click almost anywhere on it, it is surrounded by a scale box with handles at the corners and in the middle of each side [like MacDraw] which you can drag to reposition and resize the graph.

Pie charts with a scale box also have handles on each pie so that you can drag one or more sections away from the centre. However, there is no quick way to draw an exploded pie with all the sections away from the centre.

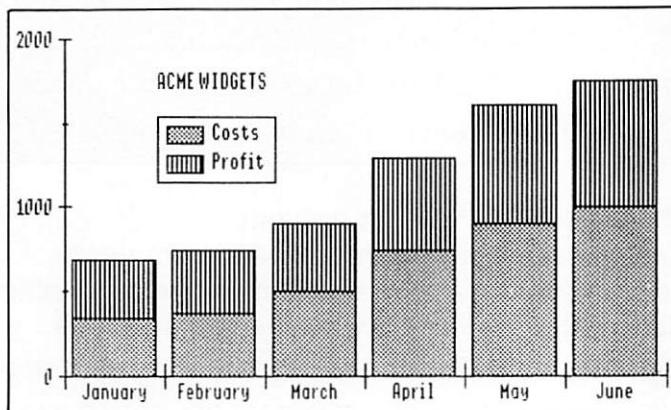


Figure 1: Shaded bar graphs can be presented in several formats

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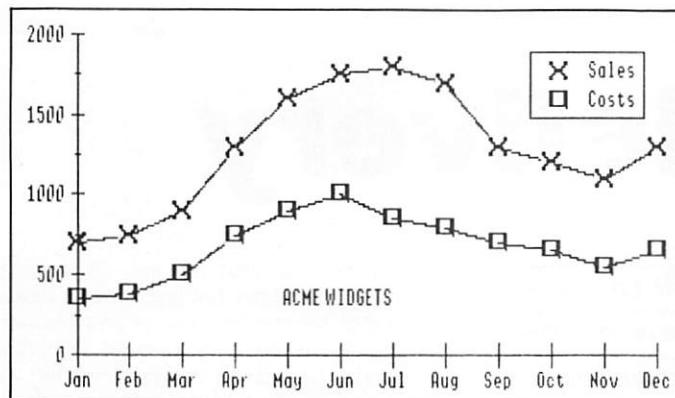


Figure II: Points and their connecting lines can be displayed or suppressed

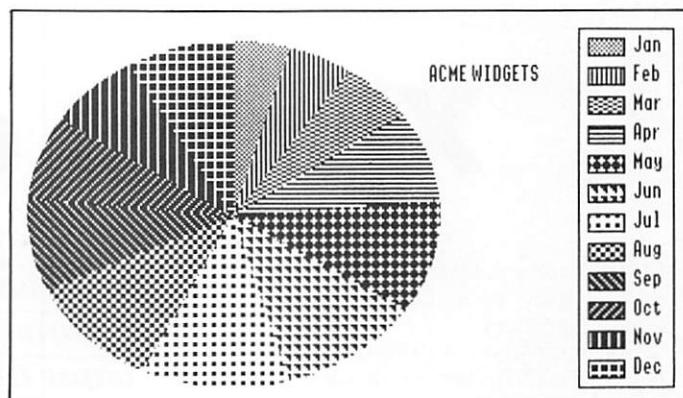


Figure III: Pie charts can be complete or exploded

► You can add text to a graph from the Options menu. This allows you to enter headings, sub headings or axis labels.

There seems to be no easy way to enter a vertical heading alongside the vertical axis, but it can be done by entering and positioning one character at a time. You can also add lines or arrows to a graph or chart to link, say, a point on the graph and a piece of text.

With any type of graph, you can add a legend to identify the lines, bars or portions of a pie. If there are no labels in the worksheet to identify the values you have plotted, the legend is just a set of coloured blocks which correspond to the colours in the graph or chart.

But if there are labels in the column to the left of the values you are plotting (or in the row above the values), they will appear in the legend. The legend block can be moved around the screen but it cannot be enlarged or reduced.

Labels for the legends must be in the row immediately above (or the column immediately to the left of) the values. Something not mentioned in the manual is that if your worksheet has a blank row between the row of labels and the first row of values, no labels will be included in the legend.

This problem can be overcome by using a command in the Edit menu to copy the range of labels into the blank row. The same applies if there is a blank column between the labels and the data.

If you want to plot two or more sets of values on the same graph, they must be in adjacent rows or columns. If you blank out the unwanted rows or columns, then select a block, these blanks will be plotted on the graph or chart. The answer is to use the range copy command from the Edit menu to bring the data together.

When I tried this, it worked most times, although sometimes it plotted the copied data as zeros. Again, this minor bug may not matter in practice because you can always revert to AppleWorks and amend the worksheet layout.

As with the legend labels, labels for the horizontal axis must be in an adjacent column or row.

This means that if you try to plot, say, just the values in column G of your worksheet, the values or labels in column F will appear

along the bottom of the graph. To avoid this, you can blank out the values in column F and replace them with labels.

The Windows menu allows you to choose between looking at the worksheet or the graph. Alternatively, you can resize them to have both on the screen at the same time. If you then alter a value in the worksheet, the graph will change accordingly, but not until you click on the graph window.

Another option in the Windows menu allows you to fill the whole screen with the graph. This gives an idea of how it will look on paper.

On point/line graphs there is an option in the Graph menu to display the mean or standard deviation of the points. The mean is shown as a horizontal line across the graph at the average of all the points plotted.

Standard deviation is shown as a thick horizontal line at the average position and two thinner lines above and below the average at one standard deviation from the mean. This means that two thirds of all values are between these thinner lines.

The mean and standard deviation lines are normally drawn on top of existing lines but they can be drawn in the background. The mean and standard deviation options do not work if only a single row or column of values is plotted. There must be at least two rows or columns.

### Best fit lines

With point/line graphs you can also display a regression line. This is the line of best fit (presumably calculated by the least squares method) through all the points plotted. Again there must be at least two rows or columns of values plotted.

From the Options menu you can amend the display of line/point and bar graphs in various ways. For example, you can change the colour and the background, lines and text.

Text is limited to a range of four colours (black, magenta, green and white) but if you opt to change the background or line colour, you are offered a palette of 136 different shades from which to choose.

Another option sets a grid on the graph. Normally, there is no grid but you can choose either horizontal lines, vertical lines,

lines both ways or just points at what would be the intersection of the lines. The grid can be coloured in any of the colours on the palette.

A useful feature of Visualiser is the option to exchange the X and Y axes, which automatically changes the labels too, and the scales can be inverted so that the graph is drawn upside down and/or left to right.

You can also set the maximum and minimum values of both axes, the position at which the vertical axis cuts the horizontal, the main divisions (at which numbers are displayed on the scale) and also the minor ones, which display only tick marks.

For some people, the most useful feature of Visualiser will be its ability to display and print a background picture created by a program such as Mousepaint to your graph.

You can move the graph around on the background by using the grab handles on the scale box surrounding it. However, pictures must be binary files and limited to about 32k.

You can have two or more graphs on the same background picture. Create the first graph, load in the background, then choose the option *set background* from the File menu. You can then no longer move or resize the first graph, but any subsequent one will have the current image in the background.

You can also save the background with any graphs drawn on it. If you reload this picture, you cannot change the position or size of the graphs against the background, but you can draw more graphs if you wish.

Despite a few minor bugs, Visualiser is a good program for anyone who wants to draw graphs from AppleWorks spreadsheets or from DIF files created by similar programs. Undoubtedly it is more impressive in colour, but even in black and white it draws excellent graphs and charts.

If you want instant graphs from within your spreadsheet program you should choose either SuperCalc 3a or VIP Professional, but Visualiser does offer some useful features that the other packages do not.

**Product:** Visualiser  
**Price:** £99 for IIgs, £89 for IIe or IIc.  
**Supplier:** Bidmuthin Technologies, PO Box 264, Harrow, Middlesex, HA3 9AY  
**Tel:** 01-907 8516.

# XPress delivery

"MUMMY, why is Daddy pulling his hair out?" "Hush, dear, Daddy's playing desktop publishing."

Of all the areas of computer use in which I'm involved, DTP is the one guaranteed to drive me to distraction. I didn't have half this hassle when my publishing efforts were confined to typewriters and Gestetner masters.

PageMaker was the start of it all. I really tried with PageMaker – even read the manual. Try as I may, the correspondence between the screen and the output of my LaserWriter never seemed to be more than about 70 per cent.

I usually finished up printing several drafts and moving the blocks around until the paper version was acceptable, never mind *wysiwyg*.

At one point I got so frustrated with PageMaker that I deleted it from my hard drive and turned to MacAuthor. Now there's an amazing program ... at least it would be if it did everything it's supposed

## Dave Russell takes a tonsorial view of the latest DTP package

to without falling over.

It has certainly improved, and version 1.3 is a bit more stable and has a nice preview mode which looks good on the MegaScreen. Maybe Version 2 will be the one with all the features and no bombs.

Then there was Ready, Set, Go 3 which certainly had promise. In fact I use it occasionally for quick jobs, although always a little apprehensively since I heard that it's been blamed for wiping hard drives.

When the Editor said "Have a look at XPress" I didn't know whether to laugh or cry. Still, I saw what Stevie and Jos had said about it (see panel) so I was certainly hopeful. Rather than keep you in suspense, I may as well tell you – XPress is powerful and it

has a host of great features. I'll describe some of them later, but first, the bad news.

It took me the best part of an afternoon to get the review copy working and printing to my LaserWriter without bombing. As far as I can tell, if you buy XPress the program will allow you up to three installations on a hard drive. For some reason, the review copy would only allow a single installation – thanks, guys.

Not wanting to lose the review copy through a drive crash (I've had several in the past) I decided to drag-copy it to the hard drive. It seemed to work, asking for the master disc to verify it before opening, but then bombed repeatedly in a variety of ways. Oh well, I thought, I'll run it from the floppy.

Having booted once again from the hard drive, I put the program disc into the internal drive and opened XPress. That seemed to work with only the occasional lock-up until it came to printing, which never got farther than an Unknown Error -8300.

Are there really 8300 negative errors? How many positive ones are there? Is there an equivalent number of Known Errors?

At this point I decided that the program really wanted its own system file, so I booted from the XPress startup, then opened the program from the floppy. Now that should have worked, but once again it encountered the dreaded Error -8300 at print time.

I thought the printer drivers might have been corrupted so I replaced them, but to no avail. Of all the error numbers in all the DTP packages in all the Macs I have to get this one. Boot it again, Sam.

With baldness approaching at the double, I admitted defeat and used up the one and only hard drive installation. Still it wouldn't print. In desperation, I replaced my version 4 drivers with the version 3.1 drivers from the startup floppy, and guess what – it worked.

I can believe that the program didn't like the new drivers, but why wouldn't it work when I ran it from the floppies? Still, what's an afternoon between friends. I can always replace everyone else's drivers on the net.

Figure I: XPress scores with its ability to integrate text and graphics

## Wines for fun and profit

### Introduction

Wine, probably the world's oldest alcoholic beverage, is the product of fermentation (usually of grapes). Wines are classified by colour, category, kind of grape, sweetness, and place of origin. There are many different flavours and uses of wines.

Wines are either red or white. Red wines range from very pale pink (the rosés) to deep purple-red, and white wines range from pale straw yellow to dark brown. In red wines, the colour (and the tannin, providing body) comes from contact with the hulls of red, purple or black grapes during pressing and/or fermentation. The colour of California.

The following is a list of red grapes and their uses: (1) Barbera is used for most of Italy's reds and some good reds in the Napa and Sonoma valleys of California. (2) Cabernet Sauvignon is used in the red wines Bordeaux and the best reds of California. (3) Gamay is used in Beaujolais wines and in some unremarkable reds in California. (4) Grenache is used in rose wines of the Rhone Valley, most of the Spanish reds, and the best like the Bordeaux reds, and the best red and jug wines of California. Pinot Noir is used in the reds of Burgundy and a few good wines in Napa and Sonoma valleys of California. (6) Zinfandel, a grape unique to California, produces some interesting varietal wines but is best known for good jug wines.

The following is a list of white grapes and their uses: (1) Chardonnay is used in white wines of the Loire Valley of France and in the best inexpensive white wines of California. Chardonnay (sometimes called Chardonnay) is used in the best of California and in many European white wines, including goudy, chablis, champagne and ful-

ied Italian wines. (3) Colombard, a very acidic grape with some sweetness, is mainly used for Cognac and Armagnac brandies. (4) Johannisberg Riesling is the major wine grape of the Rhine and Mosel valleys of Germany, of the Alsace-Lorraine region of France, and of Austria, Luxembourg, and northern Italy. (5) Sauvignon Blanc is used in the sweet white wines of Sauternes and Barsac, the dry whites of Graves, and the driest wines of the Loire Valley of France. (6) Traminer (also Gewürztraminer) is used in the whites of Alsace, Germany, and the Italian Alps, as well as in a few good whites of California.

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### Character Specifications

Size:	Shade:	Color:
9	<input checked="" type="radio"/>	Black
10	<input type="radio"/>	Blue
12	<input type="radio"/>	Cyan
18	<input type="radio"/>	Green
	<input type="radio"/>	Magenta
	<input type="radio"/>	Red
	<input type="radio"/>	White

OK

Cancel

Figure II: Shade and colour options

work, I'm sure they'll understand...

Once it was working, XPress worked well. Although the word processor aspect was perfectly adequate, I tend to import text from smaller documents into the newsletter or whatever and XPress was quite happy to get MacWrite, Word or plain Ascii files.

I'd have liked the ability to import Works and possibly even WriteNow files, but you can't have everything.

Like any good publishing tool, XPress recognises that you want precise control over your text. To this end, it provides the ability to control leading (even allowing negative leading), allows both manual and automatic kerning and also tracking.

Kerning is usually applied to letter pairs (like AV), but tracking involves adjusting the space to the right of each of a selected group of characters. It's a very useful facility if you're setting headlines.

Getting headlines to fill the available space is an art in itself, and tracking offers the enthusiastic amateur like me the ability to get a better-looking finish. Negative tracking will shorten a slightly overlong

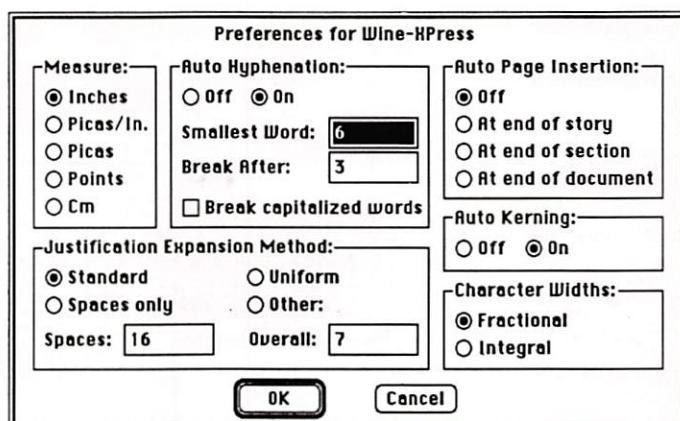


Figure III: Text presentation can be finely tuned

headline while positive tracking will stretch a short one. Of course, if you use too much negative tracking you'll overlap the characters.

The package also offers four methods of justification expansion – the way white space is added to a line of text to make it fill the column. Auto-hyphenation is provided, with an exceptions dictionary. I found it quite acceptable and better than some

other packages.

A sophisticated spelling checker lets you check a single word or an entire story. I didn't run any precise timings, but it seemed to check an eight-page document quite quickly. As far as I can tell, you can't edit the main dictionary.

However, you can compile auxiliary dictionaries which will be scanned during checking if they are selected. There's also a

## First impressions

XPRESS has been sitting around the office for a few weeks already. The college bought it with the intention of in-house publishing, and to the best of our knowledge, that's as far as it got.

Everyone starts with great intentions when they buy a new piece of software, but how often are those intentions left on a shelf with the disc and documentation?

The prospect of having to teach short courses in desktop publishing and to use XPress with students on BTEC courses, spurred us into actually sitting

down at the Mac Plus and getting to grips with it.

Having had some practice at using Mac software (Jazz, MacWrite, MacPaint and so on), we decided to dispense with the manual and plunge straight in, expecting it to be a piece of cake. Well, we were half right!

Lots of it was familiar – font, style, the text cursor, the edit menu – and much of it was obvious. But what about kern? Invisibles? Hairline? Gutter? And some of the tools looked remarkably like space game characters.

We realised that some knowledge of printing terminology was needed, and turned to the manual for help.

Documentation has a nasty habit of being written for those already expert in the system. This manual proved to be well written, easy to read and understand, and as complete as necessary – at least as far as we have used it.

It gave us the answers we needed, provided the description of the tools, and pointed us in the direction of online help in the shape of About XPress.

Most importantly, we discovered the basis of XPress – text and picture boxes.

Suddenly it all looked manageable, and after about two hours exploratory work we embarked on creating an in-house IT bulletin.

We successfully imported a design from MacPaint, linked text boxes, manipulated boxes and produced acceptable copy on an ImageWriter – now much better on a LaserWriter.

**Stevie:** After six hours I feel quite comfortable with XPress. There's a lot to learn, but that needs time.

I particularly like the About XPress online help and the manual. I wonder, though, how a Mac novice would have coped – there is no instruction for using a pull-down menu.

That's a minor point. Certainly, experience of the Macintosh environment proved very useful and time-saving.

I do feel, however, that a greater understanding of typesetting and publishing would be needed to get full benefit from XPress.

Stevie Vanhegan lectures in Computer Studies at Clarendon College of Further Education, Nottingham.

**Jos:** I had just a couple of initial moans about XPress. First, font sizes available from the Style menu but not installed in the System produce unintelligible symbols on the screen, and print out (on our LaserWriter) with the top chopped off.

Second, I found that a document started with the ImageWriter page setup, then transferred to the LaserWriter page setup, produced a truncated bottom line, despite displaying OK on the screen.

Also, our LaserWriter stubbornly refused to print the last letter of one word within the right hand page margin – again, there was no indication of this on-screen.

The offending word? No multisyllabic piece of technical jargon but an innocuous "quite".

The text had been formatted in Chicago 12 font, which we don't have on our LaserWriter. Changing to a font we did have installed cured the problem.

As a computer technician, I found XPress a very powerful tool, although it will obviously take time to fully appreciate its more subtle features.

The online help could well save me rushing up and down flights of stairs to aid bewildered students – if we can only persuade them to use it.

Jos Potts is an I.T. Technician at Clarendon College of Further Education, Nottingham.

## Review

word count facility which, as Roger Blunden pointed out last month, is lacking in many word processors.

The checker has a few idiosyncrasies. For example, if "naive" has the umlaut over the i, the checker doesn't seem to see the i at all and therefore queries the words "na" and "ve".

It does the same thing when the acute accent is present in "precis". The dictionary seems to be American at heart – it doesn't like "programme" and offers to put a d or an r on the end – but it contains both the American "behavior" and the English "behaviour".

For some reason though, it didn't like "pupil's", "exams", "experimenter's" and a few other perfectly harmless words.

The package is also a bit more intelligent than others when placing text blocks. For example, if your paragraphs are always preceded by a blank line, the package will ignore it if a paragraph appears at the top of a panel. Similar intelligence is shown with regard to trailing blank lines.

As far as text is concerned then, the package performs well. For a page layout package though, equally important is the ability to deal with graphics. Here, XPress

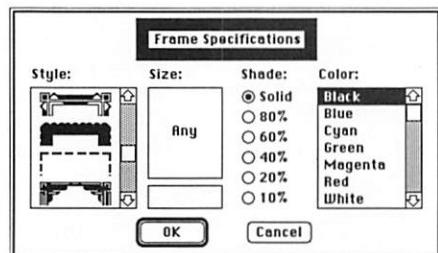


Figure IV: Border selection

again performs better than most.

For example, pictures can be imported from bitmap based packages like MacPaint and FullPaint, or from object-based packages like MacDraw and SuperPaint which will save in the PICT format. It will also import pictures from Adobe Illustrator in Encapsulated PostScript format.

The usual positioning and resizing facilities are provided, but XPress scores over practically all the other packages with its ability to integrate text and graphics.

If you position a graphic box within a text box, the text will automatically (and intelligently) run round the outline of the box, which can be a variety of shapes. This is a facility which Ready, Set, Go 3 promised but never quite seems to get right.

Additionally, by setting the graphic box to be transparent and also selecting text

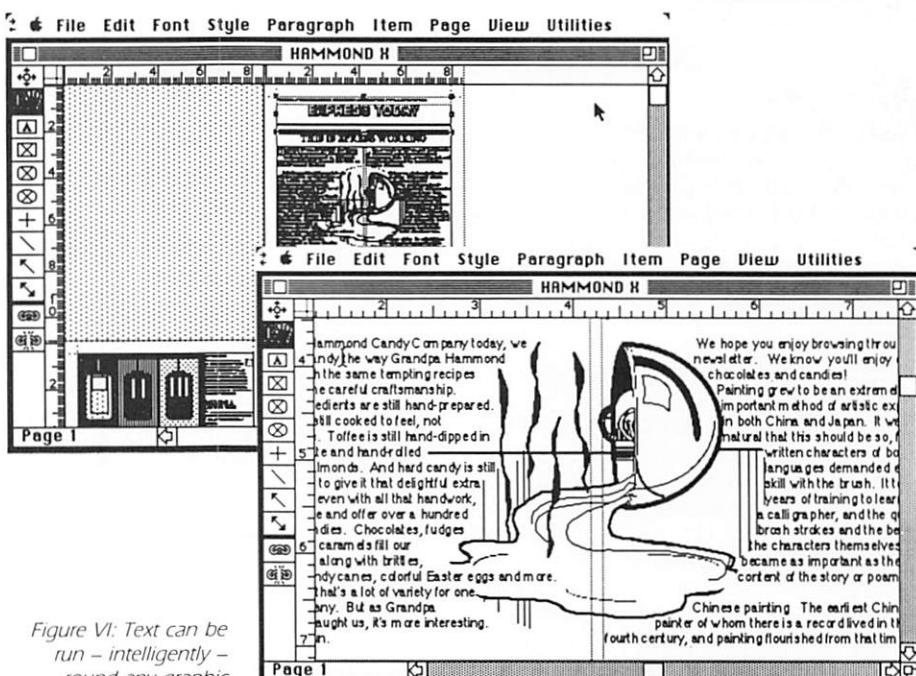


Figure VI: Text can be run – intelligently – round any graphic

run-round, XPress will actually run the text around the graphic itself rather than the box outline. This is very useful and something that many people have been waiting for.

If you want the text to appear on both sides of the graphic, you need to position it between columns or set up more than one text box, but it is possible.

For output, the program can cope with both LaserWriter and Linotronic. It also supports the ImageWriter, and colour printing on the ImageWriter II.

If I'd managed to hit the right section of the manual when I was having trouble printing, I might have realised that the drivers were the problem because the page setup section shows dumps of the modified version 3.1 drivers.

Printing to the LaserWriter is slow – gone is the speed improvement of the new drivers. The lack of speed is understandable when you consider the complexity of running text round an irregular graphics shape, but it means that either you don't do many proofs or you drink a lot of coffee.

Despite the problems I had getting started, I was very happy with XPress. It's got a lot more facilities than I've mentioned – for example, a frame editor to let you design custom borders, horizontal rescaling

of characters, and linking of text boxes.

There is also page numbering, easy use of columns for text, and so forth, as well as all the things you'd expect in a DTP package.

It also contained a couple of surprises. For example, when I tried to cut an unwanted text box, I discovered that Cut was dimmed out on the Edit menu. This is because boxes must be Deleted via the Item menu. It's all there in the manual, it's just not what I expected.

The package requires at least an enhanced (new roms, 800k drive) 512K machine and an external drive, but a megabyte of memory is recommended and a hard drive would not be wasted.

With PageMaker 2.0 in the offing, I suppose I might pay the £60 or whatever for the upgrade. On the other hand, maybe I'll put the money towards XPress once they support up-to-date printer drivers. After all, it might mean that in the long run I'll have a little more to invest in a decent toupe.

<b>Product:</b> Quark X-Press
<b>Price:</b> £799.25
<b>Supplier:</b> Heyden and Son, Spectrum House, Hill View Gardens, London NW4 2JQ.
<b>Tel:</b> 01-203 5171
<b>Requirements:</b> Apple Macintosh

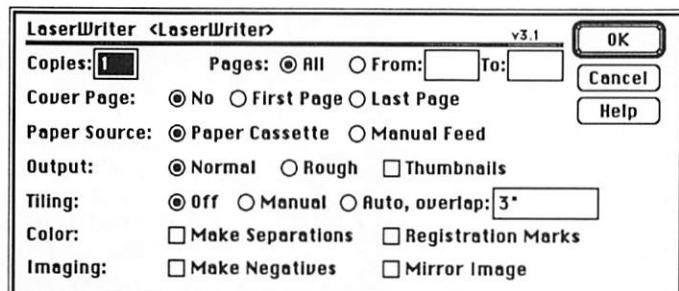


Figure V: Printing options

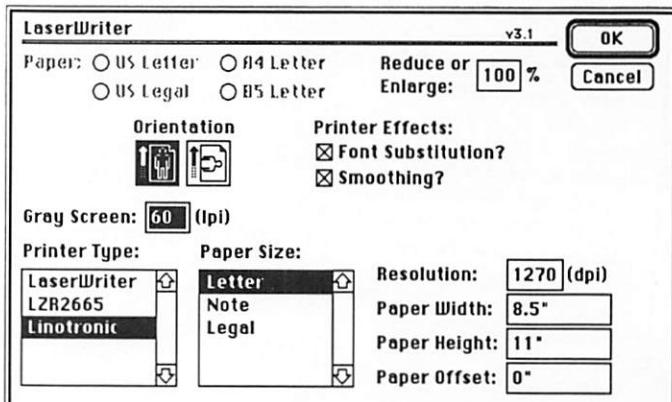


Figure VII: Printer and paper options



## Take off with MicroLink

THE British Airline Pilots Association - BALPA - has marked its golden jubilee by joining MicroLink.

Trade union for 6,000 commercial pilots, BALPA negotiates with 30 UK airlines and a similar number of foreign flag carriers who employ its members.

"We celebrate our 50th birthday this year, so it seemed an appropriate time for us to log on to the new information technology", said a spokeswoman. "Until now we've depended on the telephone - our office didn't even have telex."

"A very high proportion of our members are computer and communications enthusiasts when they're not flying. They'll be happy now MicroLink has provided facilities for two-way electronic messaging between themselves and BALPA."

"Apart from improving contact with our members, we'll be able to use electronic mail and telex to communicate with airlines and other pilot associations throughout the world".

## CONSORTIUM FOR COMMS

A UNIQUE association of community groups involved in computing has gone on-line with MicroLink.

Hackney Info Tech Consortium is a non-profit company formed by 45 adult education institutes, training schemes and local voluntary organisations in the London borough.

It supports member

MICROLINK has scored yet another world first by taking on board a unique electronic legal and financial service for firms and individuals.

Insight provides round-the-clock legal advice, help with tax and VAT problems, and insurance cover against the cost of litigation.

It serves a wide range of personal and business needs resulting from minor problems like disputes with neighbours up to full scale Customs &

Excise investigations.

A team of 50 solicitors and barristers provides a 24-hour legal advisory service. Any legal problem can be dealt with either by electronic mail or telephone. Full written advice on complicated matters is promised within 24 hours.

There is a legal fees insurance package covering solicitors' and barristers' fees, court costs, witness expenses, and opponents costs in certain cases.

Personal financial advice

- on banking, pensions, insurance and tax - is offered during office hours and available in most cases through a local number. Written reports can be provided within 24 hours and consultants are available for personal visits.

Business membership of Insight also includes a wide range of special assistance for companies, covering such areas as staff insurance, tax, cash flow forecasting, pension scheme analysis and employee benefits.

Companies can also buy an Inland Revenue and VAT protection service, in the event of in-depth tax, PAYE or VAT investigation.

Company accountants can draw on advice from former Inland Revenue and Customs & Excise inspectors and get professional representation at hearings and tribunals. Up to £25,000 towards professional fees for preparing a case is included in the protection.

Two brand new Insight services will benefit from the immediacy of MicroLink communications. The first provides on-line mortgage quotations and information for property buyers.

The other supplies details about commercial finance, venture capital and other forms of commercial funding for established businesses and start up schemes alike.

Insight, operated by Investment Marketing Services, is an electronic mail extension of the IRPC legal and tax advisory service which has been operating for seven years and has half a million UK subscribers.

## Calling all subscribers

*THE latest technological advance on MicroLink allows subscribers to enjoy all the communications benefits of radiopaging for as little as 36p a day.*

*Thanks to a link-up with British Telecom's national radiopaging service, it means that MicroLink electronic mail and telex transmissions need no longer stay unnoticed on reaching their destination. And users won't be put to the trouble of accessing their mailbox when it's empty.*

*As soon as an Email or telex message arrives the radiopaging service is automatically alerted and the subscriber gets a "bleeper" call.*

*The same procedure takes place in the opposite direction - messages to other people can't be ignored or overlooked if the addressee carries a radiopaging device.*

*There are also all the other advantages of radiopaging - like keeping users constantly in touch with their base.*

# Into hyperdrive with hypertext

EVER since the days of Engelbart in the late 1950s and Nelson in the 1970s, the idea of hypertext has been touted by computer buffs as the greatest thing since sliced bread.

But what exactly is hypertext, and why should we get excited about a recently released package for the Mac called Guide?

Quite simply, hypertext in the electronic medium provides us with a unique opportunity to move away from the limitations of linear book-form information.

By using the concept of "nodes" of information and "links" as bridges between them, hypertext permits an almost unlimited degree of flexibility. This flexibility is both its great strength and potential weakness.

## Thorough workout

To give Guide a thorough workout, I used it to create a scientific journal type document, where readers normally look for specific kinds of information. Hopefully they would find using a Guideline (as Guide documents are called) much easier than reading through the conventional linear journal format.

To do justice to the potential of the package, I ran it on a MacPlus with a 3Mb

---

***Mike Forrester opens  
the door on a whole  
new world***

---

volume on a hard drive, using a large A4 MegaScreen display.

The package can be run on any Mac with at least 512k, but with enough memory to create and navigate through various kinds of documents you can get a much quicker idea of the pros and cons of what is probably the only commercially available hypertext package.

The first thing that becomes apparent is that the power of the package comes about through the combination of four or five primary functions unique to the hypertext world. The most important of these are available under a Make menu: Buttons, Notes, Inquiries and References. With these, many things are possible.

However, it is only fair to say that you really have to "live" in a hypertext environment for a while to get to grips with what can be accomplished. I'll only be able to give a flavour in this review.

Button/Replacement is a special keyword/further expansion function: Any word can be highlighted, and moving the cursor over it changes the cursor to a "button".

Tucked away behind the highlighted words – or graphics – can be any amount of text, text plus graphics, and so forth.

For example, the chapter headings of a book can be buttons; by clicking the Chapter 1 button, you are immediately presented with the "replaced" text for that chapter. Click in the replacement text and it is folded away, leaving the button once again.

---

## Replacements

There is no limit to the number of levels within levels you can construct, but one problem not explained in the manual arises when you try to make all the replacements for a particular button operate as buttons themselves.

For example, suppose you want the Chapter 1 button to be replaced by the section headings, which are themselves buttons leading to the actual text.

Once you have clicked the Chapter 1 button, you are faced with only buttons. There is nothing to click to get back to the Chapter 1 button since all the section headings will only lead lower down the hierarchy.

There are two ways around this problem, but neither is really satisfactory. One is to use the Display Symbols option, which puts the appropriate cursor symbols at the start and end of each structure. This very quickly produces a messy document.

The other approach is to incorporate a piece of plain text somewhere in each level of replacement so that it can be used for folding away that level.

A particular advantage of Guide is that graphics can be buttons or replacements with the same ease as text. You have to be very careful about how the graphics are created though.

If you wish to have buttons and replacements within and between graphics, the graphic components have to be overlaid very precisely – no easy task.

On its own, the Button/Replacement facility might not seem particularly exciting, but when you combine it with the Inquiries function you suddenly begin to see the advantages.

Inquiries allows you to define certain combinations of buttons as mutually exclusive document sections. Suppose you wanted to allow either a yes or no response

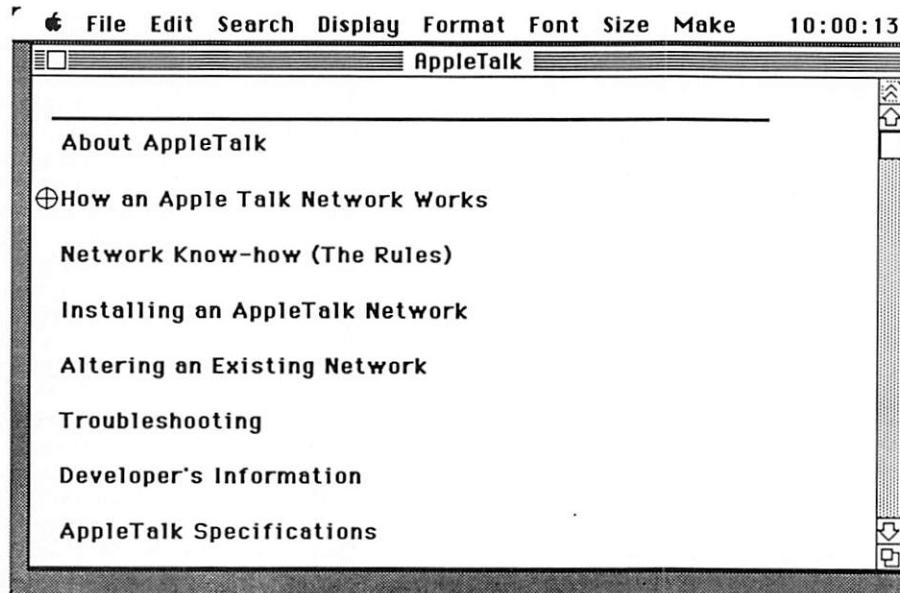


Figure 1: The top level, showing the Button cursor – press for action

to be selected, but not both: By using Inquiries in this way, you can build up a complex branching document – like a fault diagnosis system.

### Report generation

Also, imagine a document which has been written as an in-house management report, structured for particular groups of staff. Certain sections will be appropriate for sales staff, while others should only be accessible to the finance department. Using Inquiries, your master document can contain all the information yet allow different reports to be generated.

The Guide manual (which is a bit like the curate's egg – good in parts) uses this kind of example to demonstrate how you can structure a document any way you like for specific groups of readers.

It has to be said though that living in the hypertext world puts a great deal of responsibility on to the author of any document.

Firstly, he must have a clear idea of the kinds of information which readers want – a scientific article might attract browsers who merely want a quick overview, whereas others might want very specific details, say about how an experiment was carried out, because they want to replicate it. Different structures are needed to support the different reading purposes.

Furthermore, authoring a Guideline demands that the writer has a very good idea of the interwoven structure of the document being written.

### Task identification

It's a bit like cooking – although you may have a list of all the ingredients, if you don't know what you're doing and why, hours of

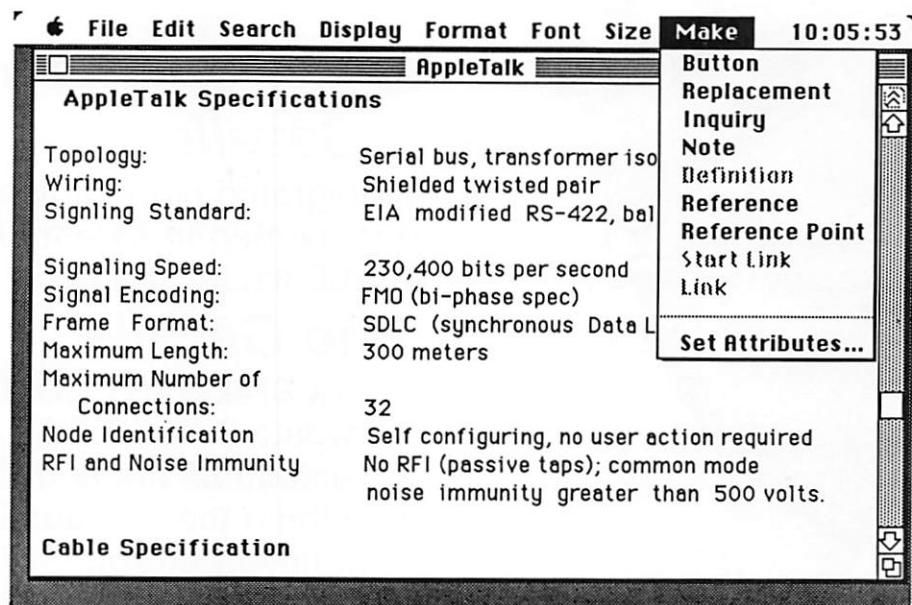


Figure III: The Make menu, where all the work gets done

work may end up as Scotch broth rather than exquisite sautéed vegetables.

For a range of documents this is not a problem and the advantages of a Guideline structure will quickly become apparent. For any writers of technical manuals, guidebooks, thesauruses and so forth – anywhere where the reader's task can be clearly identified – Guidelines can make things considerably simpler.

However, for certain applications where hypertext could be useful (such as large library-type databases where whole book-length chunks of material are being accessed) authors probably have little knowledge about how exactly their documents are used. Without this, writing a Guide document could be very much a hit and miss affair.

This brings us to the third main function in Guide, the Note. For my own task (constructing a scientific paper as a Guide docu-

ment), this was very useful and could have a whole range of applications.

Many readers will know what it's like when they are going through a book or paper and come across a referenced name, a footnote or an appendix symbol of some kind.

Within Guide, notes are created by highlighting words in the text you wish to expand on; as you move the cursor over this word it changes to an asterisk, reminding the reader it's a note.

Click the mouse and a drop-down window containing the footnote or whatever appears, and will remain there as long as the mouse button is held down.

### Creating notes

What you wish to display in the pop-up window is created in a Definitions document created along with each Guideline.

This is definitely an advantage, the electronic equivalent of going to the back of a book, or to a footnote. Of course, you can create these notes anywhere you like in the text and thus a whole range of possible advantages opens up.

Imagine working your way through a long chapter in a book and coming across an obscure idea explained in an earlier chapter. With "noting" you can have an immediately displayed reminder of what the idea was.

Consider the implications of a system like this for students. They could build in their own notes at various points in the text to remind themselves of some related point. The nice thing about this facility is that documents written as Guidelines can be tailored to the needs of the individual reader.

However, I had considerable difficulty associating multiple occurrences of the same Note to the same definition – the ▶

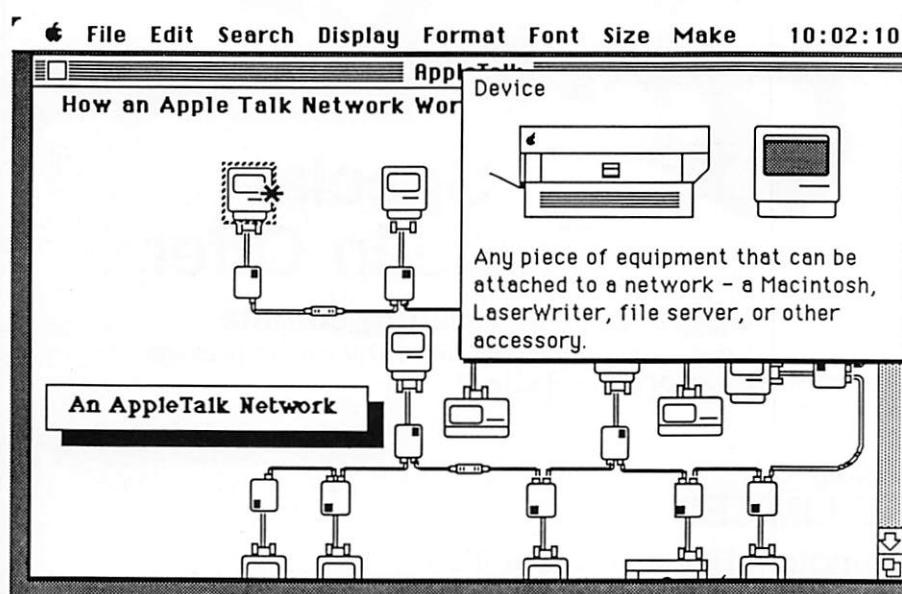


Figure II: drop-down note within a graphic replacement



# LEAP AHEAD OF THE GAME

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## *The Gazelle*

offers BRILLIANT COLOUR – and a Viewdata Frame Editor with Carousel. Download as many frames as you like, edit them then carousel the display with timer control.

## *The Gazelle*

*is State-of-the-Art Prodos communications software*

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- UNIQUE FRIENDLY INTERFACE  
Pull-Down Menus
- WRITTEN BY EWEN WANNOP  
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◀ manual's attempt to explain the technicalities of doing this could have done with a Guideline help facility itself. I did succeed, but only by slightly altering every definition individually.

## Reference points

Probably the most important function in Guide is the Reference and Reference Point facility, and it is here that the concept of the Link comes into its own.

This offers you the ability to highlight words or sections of text or graphics which point (the cursor even changes to an arrow) to other sections within the same or in another Guideline document.

The sequence of operations is quite straightforward: Select the reference word or section, pull down the Make menu and choose Reference. You can then move within the document (or to another document altogether) and identify the Reference Point you wish to jump to.

The Start Link and Link To functions also permit you to link more than one reference button to the same reference point – but remember the Scotch broth.

Again we have a potentially very powerful facility which contains some inherent drawbacks.

Imagine reading a certain section of text, and being able to jump back (or forward) to a related topic – a kind of electronic book leafing. Or being able to jump to another document and from there into something else.

You can immediately see the advantages, especially for people following a theme, navigating their way through a large collection of material as in a library search. This is the power of the Linking concept of hypertext.

However, we have to contend with Guide's major problem – disorientation. If you jump to a Reference Point, the only way back is by clicking a chevron icon at the top of the screen. If the document is anything over 15k this takes time.

Also, although the reference you came from is left flashing, there is no guarantee that the positioning of the text on the screen is the same as before you jumped.

This same point applies to Buttons and Replacements. Often when you fold away a replacement, whether you return to the original layout is a function of how much material was contained within the replacement. A novice reader can easily lose all idea of where he was in the first place.

## Navigating nightmare

How does Guide get around this? It provides you with two facilities: One lets you return to the top-level of the document, the other is a backtrack facility which records the last 32 actions you made with

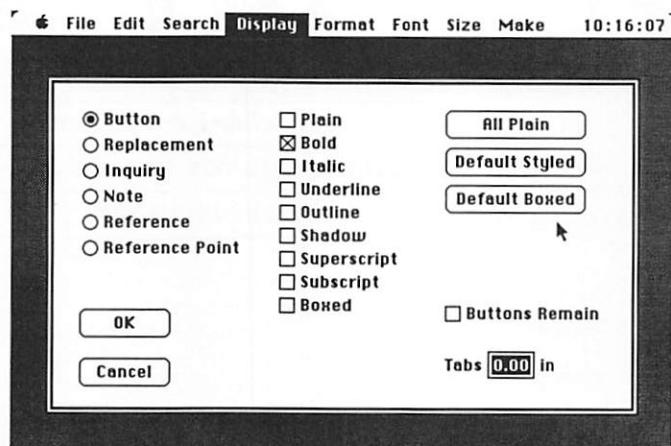


Figure IV: Selecting the attributes for the structures

the document and runs back through the sequence.

While the top-level facility is valuable because it provides a fixed point which can be returned to at any time, in practice it is little more than a panic button.

What is also needed is some form of map displaying a "you are here" type picture. Navigating through a book is no problem because we have lots of experience of the structure of books: Navigating through a complex Guideline can be a nightmare.

The backtrack function is also rather problematic, because after the first few action replays you can't really remember what you were doing there in the first place.

This disorientation is a problem common to all kinds of hypertext systems. Although there are very powerful advantages to be gained by using the electronic medium to move away from the linear book-form text, these have to be weighed against the fact that people are so familiar with serial-type processing that they need support if they are to learn something else – dare I say they need Guidance?

## Mini Guide

If you return the User Registration card, you receive a very useful desk accessory called MiniGuide which allows you to read Guide documents (using all the special interactive functions) without having to have the Guide application installed on your Mac. Although a read-only facility, I found it very useful.

By default, replacement buttons are shown as bold, note buttons are underlined, and each button has its own style. However, you can alter the style of all the buttons to suit yourself. If you don't like the changes you make, you can reselect the default styles with a single click of the mouse.

There are also Text Larger and Text Smaller options which will move the text through the installed sizes.

However, when working inside a Guideline you don't have the same flexibility

you would expect from word processing packages like MacWrite or Microsoft Word.

For example, you lose the ability to centre text, and documents can only be easily formatted as a single entity. Setting margins suffers from the same limitations, and most users will probably find it easier to create the text in a word processor and then transfer it into a Guideline.

File transfer into Guide can have its own problems though. If your document is relatively large (say 30k), then during the transfer Guide has the annoying habit of creating its own buttons and folding away up to half of the document. This can make things very tricky when you are structuring that part of the document using nested levels.

## Conclusions

However, as a first approximation to the potential of hypertext, Guide does a reasonably good PR job. And as the only hypertext package available, it is a reasonably cheap introduction to the environment.

With a fair degree of familiarity and a careful plan of what you wish to offer your readers, very powerful interactive documents can be created.

The dynamic nature of a Guideline has particular appeal over more static forms of linear text and it could point the way forward for the electronic medium.

Although Guide lets you see and experience some of the unique advantages of hypertext for readers of electronic documents, the author certainly has to think very carefully about what the reader wants.

It's the effort required in the authoring stage which may deter a lot of people: documents created without careful thought will simply give hypertext a bad name.

Product: Guide

Price: £155.25

Supplier: Office Workstations, McQueens, Distribution Division, Buckholm, Galashiels, TD1 3NL

Tel: 0896 4866

# DIY design

NEW developments in the application of micros are inevitably accompanied by their share of hype and hot air. The more revolutionary the idea, the greater the exaggeration of their claims. People get excited.

Desktop publishing is one of the most exciting, innovative and significant developments in computer applications for a long while, and it will remain so for some time.

That's not hot air, but fact – or at least a valid and justifiable opinion. The Mac DTP system and others like it are changing the face of conventional publishing at a pace that has not been seen for more than a century.

An important aspect of that change, or so we are led to believe, is the production of publications will cease to be the exclusive privilege of large publishing houses and anyone with £8000 to spare can become a back-room Beaverbrook.

Look at the TV advertising of Apple and Rank Xerox. The message is clear: Sit an accountant or marketing manager in front of his machine and half an hour he'll produce something of which Harold Evans would be proud.

It's ludicrous. Imagine the same companies suggesting you sit the advertising copywriter in front of a spreadsheet to compile the end-of-year accounts.

A DTP system is a powerful creative tool and the end product is dependent on the skills which went into creating it. A good desktop publisher needs to be a journalist, sub-editor, typographer and a layout artist rolled into one. That's a tall order, but a modicum of the above skills is essential.

It's no surprise, therefore, that many desktop examples at best look amateurish and at worst contain the kind of errors that would make anyone in the trade throw up their hands in horror.

The most obvious shortcomings are in the design and layout.

The shame is that by following a few guidelines and even fewer basic design principles the look could be improved dramatically.

Let's consider the two main areas in

## **Ken McMahon offers some tips for would-be Beaverbrooks**

which we can lay down rules for good desktop design – type and layout. Then we can discover what not to do by examining some of the common desktop pitfalls.

First in designing your publication, what is your objective? At the most basic level it must be to get someone to read it.

You would probably also want to convey a certain impression – your newsletter is up to the minute and dynamic, your company is safe and established, but forward thinking or your product is an innovative market leader.

Design plays a large part in conveying these concepts to the reader (often without realising it). For the moment let's see how to avoid the kind of thing that ensures your efforts will be consigned to the bin without a second look, or worse, convey entirely the wrong impression.

### **Choice of type**

The Laserwriter plus offers a choice of 11 typefaces in plain, bold, italic, outline and underline. Some people feel obliged to use as many on one page as possible for no other reason than that they are there.

This entire magazine is set in one typeface, with occasional use of bold and italic for crossheads and introductions. For most things you should be able to manage with one serif and one sans serif face.

Only use bold or italic text where you want to emphasise a word or paragraph, or to make larger text elements like crossheads stand out from the page – and then only sparingly.

Excessive use of different typefaces makes the page look messy, cluttered and

difficult to read. Similarly if you have dingbats all over the place they will detract from what's written on the page.

Another manifestation of the desktop publisher's preoccupation with gimmickry is overuse of outline, underline and shadow. Outline can look good and is currently fashionable. The problem is that laserwritten outline is fairly weak and emboldening does nothing to improve it. My advice regarding shadow would be don't use it – ever.

It is ugly, and often difficult to read – two very good reasons why you don't see it used anywhere else. Similarly, underlined text looks scrappy. A better alternative is to underline manually with a one point or hairline rule. It takes longer, but the result looks better.

As well as style, type size is important. In an attempt to cram as much text as possible on to a page many people use too small a

**The Laserwriter Plus offers you a choice of 11 typefaces in plain, bold, italic, outline and underline. Some people feel an obligation to use a multitude of them on one page as is humanly possible for no reason other**

Figure II: The column guide is too narrow for the type size chosen. This results in poor spacing and bad legibility.

point size, and make things worse by setting the column width too wide.

There is an ideal relationship between type size and column width. Generally speaking, on an A4 page, (assuming you have two to four columns) body copy should be in the 9-12 point range. Don't be afraid to use leading to open up the text and make it more readable. It may mean you get 20 per cent less on page, but at least it will be read.

The term layout is generally used to describe the positions of the various elements – body copy, headlines, crossheads, rules, pictures and white space on the page. Once again, the objective is to

**This headline does not look very impressive**  
*by a Bad Designer*

Figure I: A good example of using text effects for the sake of it. Clarity of the headline is drastically reduced by the shadow effect. The rounded box and multiple lines look dated and amateurish. Finally, the byline becomes confused and messy by the use of bold/italic/underline combination.

It's ludicrous. Imagine the same companies suggesting you sit the advertising copywriter in front of their spreadsheet to compile the end of year accounts. A DTP system is a powerful creative tool and like anything else, the end product is dependent on the skills which went into creating it. A good desktop publisher needs to be a journalist, sub-editor, typographer and lay-out artist all rolled into one. That's a tall order, but a modicum of the above skills is essential.

It's no surprise therefore, that many desktopped examples at best look amateurish and at worst contain the kind of errors that would make practitioners of any or all of the above trades throw up their hands in horror. The most obvious shortcomings are in the design and layout. And the shame of it is that by following a few guidelines and even fewer basic design principles the look of such publications could be improved drastically. We will be considering the two main areas in which we can lay down some rules for good desktop design; type and layout. We can discover what not do by examining some of the more common desktop pitfalls.

convey the message of the copy in the best possible way.

To achieve this the layout must be attractive, guide the reader to those parts of the text which are most important, or interesting, and help to maintain the reader's interest. All of these factors will be influenced by the way in which the page is composed.

The layout for an advertisement would be very different to a magazine article, or a newspaper front page. What follows applies particularly to newspapers and magazine type features, but there are some general principles.

Bearing in mind that people usually read from left to right and top to bottom of the page it follows that, if you have several stories, the most important ones should be at the top. Let the reader know they are important by using a big headline. As a general rule headline size should diminish as you go down the page.

The monotony can be broken up by setting all, or at least the beginning of a story across two columns. As with pictures, this helps to break up the regimented look of straight columns running up and down the page.

If necessary, columns of text can be broken up by using crossheads. And avoid the pitfall of placing crossheads next to each other in adjacent columns.

### Matter of balance

When placing pictures and illustrations the best guide is to put them where they will give an overall balance, although obviously the picture must be instantly recognisable as part of a particular feature. Also make sure they are big enough.

On a four column A4 page your smallest picture needs to be two columns wide. If a picture is worth placing it's worth a caption.

When splitting columns of text with a picture avoid leaving widows or orphans - gaps of white space or single words at the end of a paragraph. Move the picture up or down so that it dissects lines of full column width both at the top and bottom.

Don't be afraid of white space. When used appropriately it can add weight and emphasis to the text.

There are several other things you can use to improve overall look and readability. Vertical rules are an effective way of separating stories, but don't put them down every single column. Horizontal ones above and below text add emphasis. Reversed text is an acceptable way of

The Laserwriter Plus offers you a choice of 11 typefaces in plain, **bold**, *italic*, outline and underline. Some people feel **obliged** to use as many of them on one page as is humanly possible for no reason other than that they are there. This *entire* magazine is set in one typeface, with occasional use of **bold** and *italic* for crossheads and introductions. For most things you should be able to manage with one **serif** and one **sanserif** face.

Figure IV: In an attempt to emphasise various words, the designer has assaulted the reader's eye with excessive use of the variety of type styles available.

highlighting headlines or crossheads.

The question to ask when considering these features is: Does it help the page and make it easier and more interesting to read? If it doesn't it has no business being there.

Desktop publications are often let down because not enough attention is paid to alignment. Make sure that columns, headlines and illustrations are all squared. Shoddy alignment is a desktop giveaway, as is the inclusion of certain uniquely desktop elements.

Shadow text, certain tints, rounded panels and excessive dingbats on your page let everyone know that your publication has been produced on a desktop system. What's wrong with that you might ask? Well, for reasons good or bad many people view desktop publications as inferior to "the real thing".

Perhaps it's nothing more than snobbery, but you don't want your work associated with the word inferior. And there is no reason (apart from the comparatively low resolution of the laserwriter) that desktop publications shouldn't look as good as those produced conventionally.

MacDraw and MacPaint images are fine for some things, but the bitmaps produced

by the latter can take an age to print and are the signature of computer art.

For half tones the best solution, if you are supplying pages to a printer, is to have them photographically screened and sized by a commercial repro house. You can then paste the print on your completed page. Even if you are only producing a short run in-house publication, these will reproduce very well on a photocopier.

If what I have just said strikes you as sacrilege remember that the Mac is only one of a number of tools at your disposal. I have fallen into the trap of spending endless hours trying to produce something in PageMaker that with Letraset, a scalpel and a can of Spraymount could have been done in 10 minutes.

A beautiful example of inappropriate design and method is shown below. Ironically it comes from an article about the benefits of desktop systems in producing advertising and window display material for travel agents.

The handwritten advert is bright, fun, informal and cheap. The design says everything about the holiday it is advertising.

By comparison the desktopped example is positively dull, funereal even, and it probably took 10 times longer to produce. □



# Labels for all your requirements

IT seems that everyone needs labels at some time, but requirements vary considerably. I designed this label-making program so that it would:

- Produce large or small quantities.
- Print either multiple copies of one label, or one copy of several.
- Use the features of Epson JX, FX, or MX printers as required.
- Save labels in separate disc files (and indexfiles) for different purposes.
- Allow label search and editing facilities.
- Produce subroutines that could be used in other programs.
- Allow customisation as label requirements change.

Figure I shows the initial outline of the program. Line numbers for the subroutines are the result of fairly extensive renumbering, using the Renumber program on the Dos 3.3 System disc.

The following description relates to a version that I named LabelMaker24/6. This produces labels with 24 characters per line and 6 lines. As far as possible, I have

## **Harry Brown addresses a common problem**

attempted to structure it so that changes may be made fairly easily. The description is more or less in the order that I developed the program.

**MENU** (subroutine 200): The menu is required twice and could be adapted for further use. This is made possible by the setting up of an appropriate value for MM, the number of menu options.

I decided to use either the up or left arrow to move the cursor and the highlighting upwards through the menu, and therefore used down or right arrow to move downwards. The actual selection is carried out with the Return key.

For the main menu there are eight options and for the index there are three: The choice of printer was added later and a

simple GET statement was chosen rather than selection by arrow keys.

**START NEW LABELFILE AND INDEXFILE** (subroutine 300): At this stage, I needed to make some decisions. Which labels should be used, how many characters per line and how many lines per label?

Figure II shows the necessary measurements for my choice. Any other type of label could be used with a few program changes. The dimensions are as follows:

width = 2.6"

depth = 1.4375"

3 labels across

form width = 9.5"

form length = 12"

horizontal separation of labels = 0.1"

vertical separation of labels = 0.0625"

(for example Fisher Clark : code MC66363W)

The program is written to use the normal printer settings of 10 cpi and 6 lpi, giving a label width of 26 characters and horizontal separation of exactly one character.

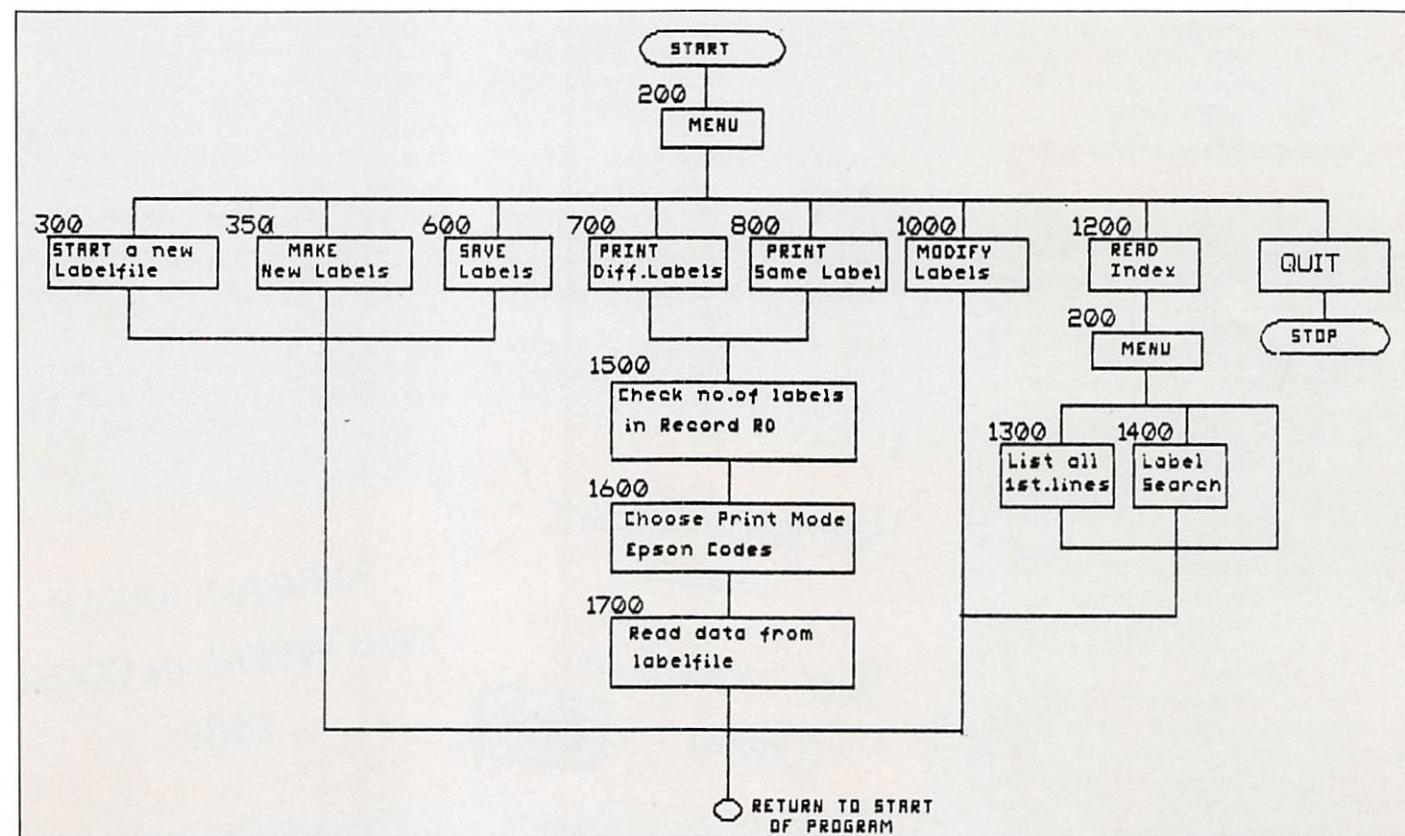


Figure I: LabelMaker/EPSON JX/FX/MX80

This produced a horizontal tabulation (between beginning of labels) of 27 characters and I specified 24 characters/label line. The vertical distance between tops of labels is 1.5 inches and I specified a label of six lines followed by three empty ones. These dimensions are the basis of the program LabelMaker24/6.

Each labelfile record consists of record number NM three characters maximum, six lines of 24 characters (L\$[NM,LN]) for LN=1 to 6) and label colour (CLS[NM]), giving a record length of 148 characters.

Label colour is only needed for the JX80 printer, but is entered as a default value 0 (black) for other printers.

Each index record consists of record number and line 1 (LS[NM,1]) only, giving a record length of 27 characters.

To make file handling easier, I decided – to divide my labels into different files. For example APPLEWORKS, PASCAL, GREETINGS, ADDRESSES.

For a given file name NFS, for example. "APPLEWORKS", the corresponding index file will be FIS="I. "+NFS, for example "I.APPLEWORKS".

This subroutine opens the file and its index and sets the count of number of records in the file as zero, in each case writing to record RO.

**READ INDEX** (subroutine 1200): This was developed to use the menu routine and

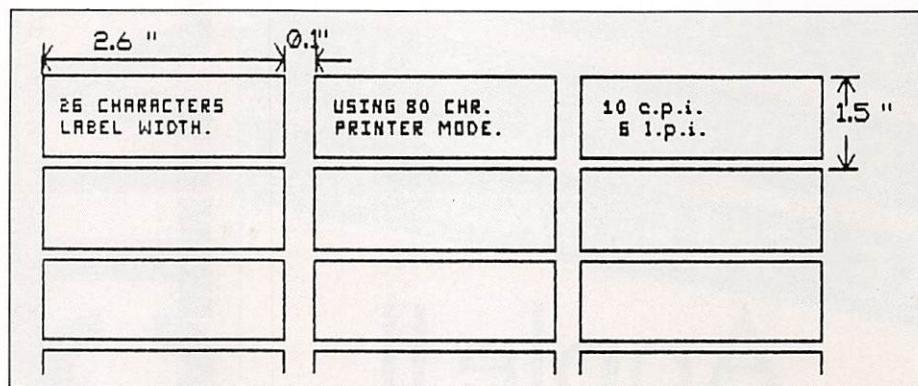


Figure II: Label dimensions, LabelMaker24/6

provide three choices. At this stage only option 3, Return to Main Menu, was implemented and the other options simply displayed a message "Routine to be written".

**MAKE NEW LABELS** (subroutine 350): Another decision was required here –

should a label be saved immediately after being created or should the saving to disc be menu-driven? I decided to allow several labels to be written before returning to menu and selecting the save to disc option.

The file name is entered (this also designates the index file) and the program checks the number of records (PR) in the file. This value is incremented by one for each new label.

For the JX80 printer, the colour required is chosen from 0(black), 1(red), 2(blue), 3(violet), 5(orange), 6(green). Colours are my descriptions – not Epson's. Colour 4 (yellow) is not really suitable for printing on a white label.

Up to six lines of 24 characters may be entered. Return ends the current line and Escape returns to beginning of current line. It is possible to enter as many records as required, then return to the main menu to select "Save Labels".

**SAVE LABELS** (subroutine 600): The first record to be saved is FL and the last is LL (=new value of PR). The new value of PR is again written to record RO in both the file ▷

Figure III: Examples of LabelMaker26/4

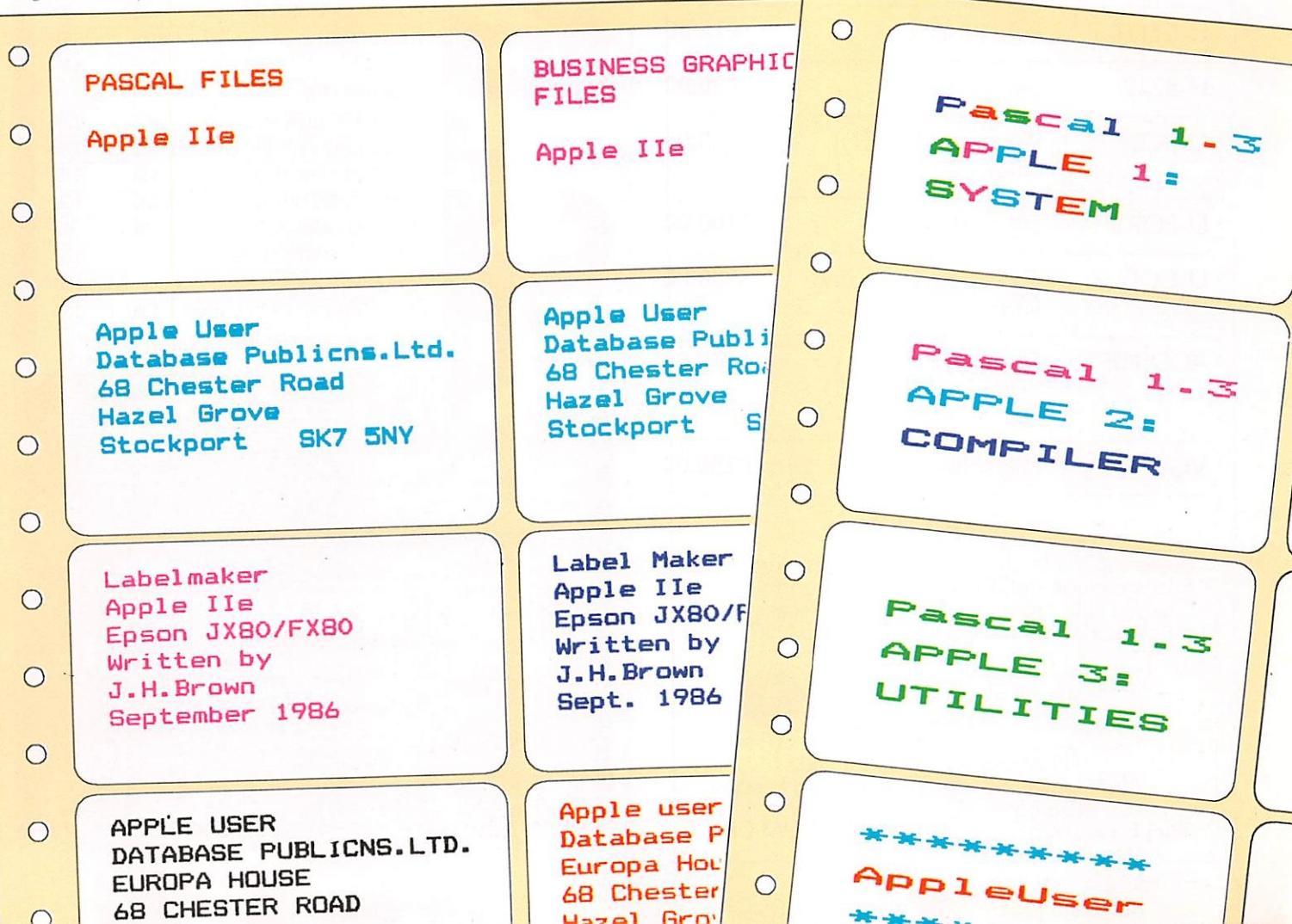


Figure IV: Examples of LabelMaker10/3

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· SALE · SALE · SALE · S  
ALE · SALE · SALE · SALE

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FLIGHT SIMULATOR II	45	36
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APPLE COMPILER	175	149
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< and its index file.

**LIST ALL FIRST LINES** (subroutine 1300): This option is obtained from the index menu (subroutine 1200). The complete index file is read to provide record number and first line of all records for a specified file. CALL -756 is used to allow browsing through the file to see if an appropriate label exists.

**LABEL SEARCH** (subroutine 1400): This is the second option of the index menu and was written as an alternative to the listing of all the first lines of labels in the file.

The routine was developed so that it could also be used in other programs and enables a search to be made by entering any part of line one of a label (from a single character to the complete line). Only one file can be searched at a time.

All possible matches of the search string are displayed together with a count of the number of labels found.

**MODIFY LABELS** (subroutine 1000):

This editing facility was developed to give an alternative to re-entering a complete label. The label number is entered, using the search facility if necessary, and the label is displayed on-screen.

Lines 1 to 6 may be changed in any order. When the line number is selected, the replacement is typed below the label and inserted in its correct position.

Label colours may also be changed. This is useful if the label was originally written for the FX or MX printer and is now required in colour using the JX80 printer.

In this case, the file and the indexfile are automatically updated.

**PRINT DIFFERENT LABELS** (subroutine 700): Inputs needed are filename, number of first label and number of last label. Subroutine 1500 checks the number of labels in the selected file and displays this value.

Print mode is selected by subroutine 1600 and the label file is read by subroutine 1700.

Printer codes for JX/FX80 printers are

selected by subroutine 2000 and for MX80 by subroutine 2200. In all cases, labels are then printed by subroutine 2400. It is possible to print more labels before returning to main menu.

**PRINT SAME LABEL** (subroutine 800): Inputs needed are filename, number of label and number of copies. Subroutines used are the same as for "Print different labels".

**CHECK NUMBER OF LABELS IN RO** (subroutine 1500): This routine is useful in ensuring that no attempt is made to print a record that does not yet exist.

**CHOOSE PRINT MODE** (subroutine 1600): I restricted the choice to three types of normal size print. Many alternatives such as condensed, expanded and italic are possible. For the JX80 printer, colour may be changed line by line or even character by character.

**READ LABELFILE** (subroutine 1700): All records between FL and LL are read from the specified file. To use the routine for printing the same label, it is necessary to make LL equal to FL.

**READ INDEXFILE** (subroutine 1800): The complete index file is read so that it can be used in the search routine.

**JX80 & FX80 CODES** (subroutine 2000): Printer mode is selected by:

```
PRINT CHR$(27);";!";CHR$(n);
```

where n has a value from 0 to 63.

I chose n=0 (normal), n=8 (emphasised), and n=16 (double-strike). All these produce 10cpi and 80 characters width. Other modes can be selected to different widths, for example 40 or 132 characters.

The number of lines per inch can be changed by:

```
PRINT CHR$(27);";A";CHR$(m);
```

where m is line spacing in 1/72 inch.

For the JX80 printer, colour is selected by:

```
PRINT CHR$(27);";r";CHR$(c);
```

where c has values between 0 (black) and 6 (green). The FX80 printer ignores colour codes.

**MX80 CODES** (subroutine 2200): The MX80 does not accept modes and colours used by the JX/FX80 printers, and I have not used it as often as the other two. However, the following codes apply to 10 cpi, 6 lpi: Emphasised on

```
PRINT CHR$(27);CHR$(69);
```

Emphasised off

```
PRINT CHR$(27);CHR$(70);
```

Double-strike on

```
PRINT CHR$(27);CHR$(71);
```

Double-strike off

```
PRINT CHR$(27);CHR$(72);
```

**PRINT LABELS** (subroutine 2400): For the labels chosen, it was necessary to print three across. I used the variable TP to distinguish between multiple labels (TP=1) and the same label (TP=2). Examples are shown in Figure III.

If the number of labels is not an exact multiple of three, the final row is adjusted to print only the number of labels needed.

It is only necessary to insert the colour and mode commands in the appropriate places in the program to give any combination of colours and modes.

I considered writing a program to produce all the possible options as a menu: However, there are so many combinations, many of which would be seldom used, that I wrote separate programs on separate discs for different purposes.

Listing II shows a method of producing multicoloured labels of three lines of 10 characters in expanded mode of 40 character width and 4 lpi. This could be used to write a program LabelMaker10/3. Examples are shown in Figure IV. □

### Listing I

```

10 REM Label Program / V      ype
   erion 1.4                  ":";
   :J.H.Brown/March 1987       :POKE 36,22
20 DIM L$(200,6),CLS(200)     :PRINT "1) JX80"
   :D$ = CHR$(4)               80  POKE 36,22
   :PRINT D$;"PR#3"            :PRINT "2) FX80"
30 FX(1) = 0                  :POKE 36,22
   :FX(2) = 8                  :PRINT "3) MX80"
40 EP$(1) = "JX80"            90  VTAB 7
   :EP$(2) = "FX80"            :POKE 36,32
   :EP$(3) = "MX80"            :GET XP
50 VTAB 1                      :IF XP < 0 OR XP > 3
   :PRINT "LABEL MAKER          THEN 90
   :EPSON JX/FX/MX80           100 VTAB 3
   :APPLE IIe"                 :POKE 36,1
60 VTAB 2                      :PRINT "[ PRINTER TO BE
   :PRINT "                   USED
   :PRINT ";EP$(XP); ]"        110 POKE 34,4
70 VTAB 5                      :HOME
   :PRINT "Choose Printer T     :VTAB 5
                                :PRINT "Select by arrow
                                keys
                                :<RETURN> to go "
                                :CH = 1
                                :L = 7
                                220 FOR N = 1 TO MM
                                :VTAB N * 2 + L
                                :PRINT A$(N)
                                :NEXT N
                                230 INVERSE
                                :VTAB CH * 2 + L
                                :PRINT AS(CH)
                                240 K = PEEK (- 16384)
                                :IF K < 128 THEN 240
                                250 POKE - 16368,0
                                :NORMAL
                                :VTAB CH * 2 + L
                                :PRINT AS(CH)
                                260 IF K = 141 THEN
                                HOME
                                :VTAB 22
                                :REM
                                :END
                                :HOME
                                :VTAB 5
                                :PRINT "START NEW LABE
                                LFILE"
                                :A$(2) = "MAKE NEW LABEL
                                S"
                                130 A$(3) = "SAVE LABELS"
                                :A$(4) = "PRINT DIFFEREN
                                T LABELS"
                                140 A$(5) = "PRINT SAME LAB
                                EL"
                                :A$(6) = "MODIFY LABELS"
                                150 A$(7) = "READ INDEX"
                                :A$(8) = "QUIT"
                                160 GOSUB 200
                                :IF CH = MM THEN 180
                                ,700,800,1000,1200
                                :PRINT
                                :GOTO 120
                                180 POKE 34,0
                                :HOME
                                :END
                                :REM
                                :VTAB 5
                                :PRINT "Select by arrow
                                keys
                                :<RETURN> to go "
                                :CH = 1
                                :L = 7
                                220 FOR N = 1 TO MM
                                :VTAB N * 2 + L
                                :PRINT A$(N)
                                :NEXT N
                                230 INVERSE
                                :VTAB CH * 2 + L
                                :PRINT AS(CH)
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                                :<RETURN> to go "
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                                :REM
                                :END
                                :HOME
                                :VTAB 5
                                :PRINT "Select by arrow
                                keys
                                :<RETURN> to go "
                                :CH = 1
                                :L = 7
                                220 FOR N = 1 TO MM
                                :VTAB N * 2 + L
                                :PRINT A$(N)
                                :NEXT N
                                230 INVERSE
                                :VTAB CH * 2 + L
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                                :REM
                                :END
                                :HOME
                                :VTAB 5
                                :PRINT "Select by arrow
                                keys
                                :<RETURN> to go "
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                                :HOME
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                                :PRINT A$(N)
                                :NEXT N
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                                :VTAB CH * 2 + L
                                :PRINT AS(CH)
                                240 K = PEEK (- 16384)
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                                250 POKE - 16368,0
                                :NORMAL
                                :VTAB CH * 2 + L
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                                240 K = PEEK (- 16384)
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                                :NORMAL
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                                keys
                                :<RETURN> to go "
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                                :PRINT A$(N)
                                :NEXT N
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                                250 POKE - 16368,0
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                                :VTAB CH * 2 + L
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                                :VTAB 22
                                :REM
                                :END
                                :HOME
                                :VTAB 5
                                :PRINT "Select by arrow
                                keys
                                :<RETURN> to go "
                                :CH = 1
                                :L = 7
                                220 FOR N = 1 TO MM
                                :VTAB N * 2 + L
                                :PRINT A$(N)
                                :NEXT N
                                230 INVERSE
                                :VTAB CH * 2 + L
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                                :VTAB 22
                                :REM
                                :END
                                :HOME
                                :VTAB 5
                                :PRINT "Select by arrow
                                keys
                                :<RETURN> to go "
                                :CH = 1
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```

: PRINT "Selection is ";A      : NEXT CO      : PRINT "Number of last l      : VTAB 7
$ (CH)                      440 PRINT          : abel ";           : POKE 36,1
: RETURN                     : VTAB 12 + LN   : INPUT LL             : PRINT "Number of label
270 IF K = 136 OR K = 139    : POKE 36,2       : OR FL > PR THEN     to be modified ";
THEN CH = CH - 1            : FOR CO = 1 TO 24  : PRINT CHR$ (7)      : INPUT NM
: IF CH = 0 THEN CH        : GET CS          : VTAB 7             : 1030 PRINT DS;"OPEN ";NFS;;
= MM                         : IF CS = CHR$ (27) : CALL - 958         : L148'
280 IF K = 149 OR K = 138    : THEN 430        : GOTO 720          : PRINT DS;"READ ";NFS;;
THEN CH = CH + 1            : IF CS = CHR$ (13) : GOSUB 1600         : R;NM
: IF CH = MM + 1 THEN CH   : THEN 480        : PRINT             : INPUT NM
= 1                          : PRINT CS;       : :MN = 2
290 GOTO 230                 : :L$(PR,LN) = L$(PR,L : X = FL
300 REM                      : N) + CS        : :Y = LL
Start new labelfile &      480 PRINT          : ON XP GOSUB 2000,2000,2 : 1040 FOR LN = 1 TO 6
indexfile                   : :NEXT LN        : 200                  : : INPUT L$(NM,LN)
490 VTAB 23                  : VTAB 23          : :PRINT             : : VTAB 12 + LN
: POKE 36,1                  : :PRINT "Another ? (Y/N) : :PRINT LN;
: INPUT "File name ";NFS    : ";           : :POKE 36,4
:FIS = "I." + NFS           : :GET YNS        : :PRINT L$(NM,LN)
320 PR = 0                    : :IF YNS = "Y" THEN PR : :NEXT LN
: PRINT DS;"OPEN ";NFS;;     : = PR + 1        : 1050 INPUT CL$(NM)
L148'                       : :VTAB 7          : :PRINT DS;"CLOSE ";NFS
: PRINT DS;"WRITE ";NFS;"  : :CALL - 958       : 1060 VTAB 22
,R0"                         : :GOTO 380        : :CALL - 958
: PRINT PR                   : :IF ANS = "Y" THEN : :POKE 36,1
330 PRINT DS;"OPEN ";FIS;;    : 510 IF YNS < > "N" THEN 49 : :PRINT "Change which lin
L27"                        : :0              : e ?"
: PRINT DS;"WRITE ";FIS;"  : 520 LL = PR      : :PRINT "Enter 1 - 6 or <
,R0"                         : :HOME           : return > ";
: PRINT PR                   : :RETURN          : :GET LCS
340 PRINT DS;"CLOSE "        : 600 REM          : :IF LCS = CHR$ (13)
: PRINT                      : Save labels to disk : THEN PRINT
: HOME                      : :PRINT same label : :GOTO 1090
: RETURN                     : :TP = 2          : 1070 IF ASC (LCS) < 49
350 REM                      : :INPUT "File name ";NFS : OR ASC (LCS) > 54
: :FIS = "I." + NFS          : :POKE 36,1       : THEN 1060
: INPUT DS;"OPEN ";NFS;;     : :GOSUB 1500      : 1080 LN = VAL (LCS)
L148'                       : :PRINT "Number of label : :VTAB 12 + LN
: PRINT DS;"WRITE ";NFS;"  : ";           : :POKE 36,4
: :PRINT RC                  : :INPUT FL        : :CALL - 868
370 VTAB 5                   : :PRINT DS;"CLOSE ";NFS : :VTAB 22
: :CALL - 958                : :FOR LN = 1 TO 6 : :CALL - 958
: :PRINT DS;"OPEN ";NFS;;     : :PRINT L$(RC,LN) : :POKE 36,1
L148'                       : :NEXT LN        : :PRINT "Re-enter line ";
: :PRINT DS;"READ ";NFS;"  : :PRINT CL$(RC)      : LN
,R0"                         : :NEXT RC        : :INPUT L$(NM,LN)
: :INPUT PR                  : :PRINT DS;"WRITE ";NFS : :VTAB 12 + LN
: :PR = PR + 1               : ,R0"           : :POKE 36,4
: :FL = PR                   : :PRINT PR        : :PRINT L$(NM,LN)
: :PRINT DS;"CLOSE "        : :PRINT DS;"CLOSE ";NFS : :GOTO 1060
380 VTAB 7                   : 650 PRINT DS;"OPEN ";FIS;; : 1090 IF XP < > 1 THEN 1150
: :POKE 36,1                  : :PRINT DS;"CLOSE ";NFS : 1100 HOME
: :PRINT "LABEL #";PR        : 660 FOR RC = FL TO LL : :VTAB 7
: :IF XP < > 1 THEN CL$(P : :PRINT DS;"WRITE ";FIS;; : :POKE 36,1
: R) = "0"                   : ;,R0"           : :PRINT "Change label col
: :GOTO 420                  : :PRINT RC        : our ";
: 390 VTAB 9                  : :PRINT L$(RC,1)   : :GET CCS
: :POKE 36,1                  : :NEXT RC        : :IF CCS < > "Y" THEN
: :PRINT "Choose colour (0 670 PRINT DS;"WRITE ";FIS;; : :PRINT
: ,1,2,3,5,6)";               : ,R0"           : :GOSUB 1700
: :GET CL$(PR)                : :PRINT PR        : :MN = 2
400 KY = ASC (CL$(PR))      : :PRINT DS;"CLOSE ";FIS : :X = 1
: :IF KY < 48 OR KY        : :HOME           : :Y = NN
= 52 OR KY > 54 THEN 39   : :RETURN          : :ON XP GOSUB 2000,2000,2
: 0                           : 700 REM          : 200
410 VTAB 9                   : Print different labels : 880 PRINT
: :POKE 36,32                 : :INPUT "File name ";NFS : :PRINT DS;"PR#3"
: :PRINT CL$(PR)              : :FIS = "I." + NFS : :VTAB 5
: 420 VTAB 11                 : :GOSUB 1500      : :PRINT "Run more labels
: :PRINT '6 lines of 24 ch 710 TP = 1      : ? (Y/N) ";
rs(max.) or <RETURN>       : :INPUT FIS        : :GET ANS
: :FOR LN = 1 TO 6            : :PRINT ANS       : :PRINT PR
: :L$(PR,LN) = ""             : :PRINT DS;"CLOSE ";NFS : :GOTO 810
: :VTAB 12 + LN              : :HOME           : 900 RETURN
: :POKE 36,2                  : :RETURN          : 1000 REM
: :CALL - 868                : 720 VTAB 7      : Modify labels
: :FOR CO = 1 TO 24           : :POKE 36,1      : 1010 INPUT "File name ";NFS
: :PRINT .";"                : :PRINT "Number of first  : :FIS = "I." + NFS
: :PRINT NM                  : :Label ";       : :PRINT NM
: :PRINT NM                  : :INPUT FL        : 1020 HOME
: :PRINT NM                  : :VTAB 9          : 1140 VTAB 11
: :POKE 36,1                  : :POKE 36,1      : :POKE 36,45
: :PRINT NM                  : :PRINT DS;"OPEN ";NFS : :PRINT CL$(NM)
L148'                         : :PRINT DS;"WRITE ";NFS : :PRINT DS;"CLOSE ";NFS
: :CALL - 868                : ,R0"           : :PRINT NM
: :FOR CO = 1 TO 24           : :PRINT NM        : 1160 FOR LN = 1 TO 6
: :PRINT .";"                : :PRINT NM        :

```

*Listing II: Demonstration of LabelMaker10/3*

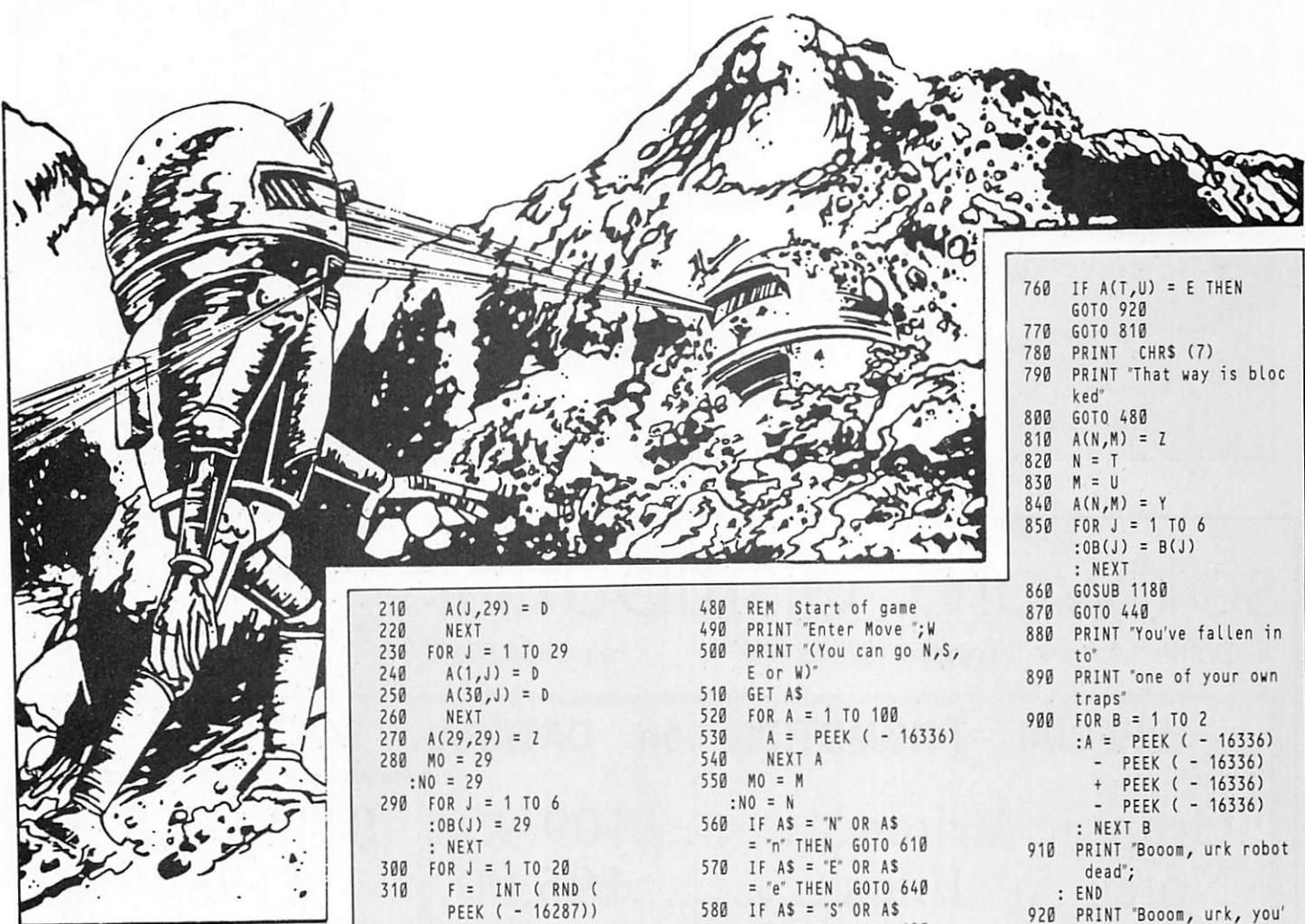
```

10 REM
Multicolour labels
20 HOME
: INPUT "No. of label row
      s ";NU
30 C = 0
:LS(1) = "LABELMAKER"
:LS(2) = "Apple IIe"
40 LS(3) = "JX/FX/MX80"
50 FOR K = 1 TO 3
60 S = 13 - LEN (LS(K))
70 SPS = "
80 FOR J = 1 TO S
      :SPS = SPS + "
      :NEXT
90 LS(K) = LS(K) + "
      + SPS + LS(K) + SPS
      + LS(K)
100 NEXT
110 D$ = CHR$(4)
: PRINT D$;"PR#1"
120 PRINT CHR$(27);";!";
      CHR$(56);
130 PRINT CHR$(27);";A";
      CHR$(18);
140 FOR RP = 1 TO NU
      : REM sets of labels
150 FOR LL = 1 TO 3
      : REM label lines
160 GOSUB 300
170 NEXT LL
180 PRINT
      : PRINT
      : PRINT
      : PRINT
190 NEXT RP
200 PRINT D$;"PR#0"
210 END
300 REM
Multicolour print
310 FOR I = 1 TO LEN (LS(L
      L))
320 C = C + 1
330 IF C = 4 THEN C
      = 5
340 IF C > 6 THEN C
      = 1
350 PRINT CHR$(27);";r";
      CHR$(C);
360 PRINT MID$ (LS(LL),I
      ,1);
370 NEXT I
380 RETURN

```

**THIS low resolution graphics game by Duncan Morris demands some strategic thinking. You'll probably find it easier to play with a colour monitor or TV. It is possible, however, to play it on a monochrome system. The game runs under Dos 3.3 or Prodos.**

# Battle of the robots



```

10 ONERR GOTO 1610
20 TEXT
: HOME
30 GOTO 1510
40 DIM A(30,30)
50 DIM B(6),OB(6)
60 FOR I = 2 TO 29
70 FOR J = 2 TO 28
80 A(I,J) = 15
90 NEXT
100 NEXT
110 W = 0
120 X = 5
130 Y = 1
140 B = 11
150 C = 0
160 D = 12
170 E = 10
180 Z = 15
190 FOR J = 1 TO 30
200 A(J,1) = D

```

```

210 A(J,29) = D
220 NEXT
230 FOR J = 1 TO 29
240 A(1,J) = D
250 A(30,J) = D
260 NEXT
270 A(29,29) = Z
280 MO = 29
: NO = 29
290 FOR J = 1 TO 6
: OB(J) = 29
: NEXT
300 FOR J = 1 TO 20
310 F = INT ( RND (
PEEK ( - 16287) )
* 27 + 2)
320 G = INT ( RND (
PEEK ( - 16287) )
* 26 + 3)
330 A(F,G) = B
340 NEXT J
350 M = 2
360 N = 2
370 B(2) = 19
380 B(4) = 19
390 B(6) = 19
400 B(1) = 4
410 B(3) = 3
420 B(5) = 2
430 GR
: GOSUB 1070
440 FOR J = 1 TO 5 STEP 2
450 A(B(J),B(J + 1))
: E
460 NEXT
470 GOSUB 950
: IF W > 100 THEN
GOTO 1140

```

```

480 REM Start of game
490 PRINT "Enter Move ";W
500 PRINT "(You can go N,S,
E or W)"
510 GET AS
520 FOR A = 1 TO 100
530 A = PEEK ( - 16336)
540 NEXT A
550 MO = M
: NO = N
560 IF AS = "N" OR AS
= "n" THEN GOTO 610
570 IF AS = "E" OR AS
= "e" THEN GOTO 640
580 IF AS = "S" OR AS
= "s" THEN GOTO 680
590 IF AS = "W" OR AS
= "w" THEN GOTO 710
600 GOTO 840
610 T = N - 1
620 U = M
630 GOTO 730
640 T = N
650 U = M + 1
660 IF N = 29 AND M = 29
THEN GOTO 940
670 GOTO 730
680 T = N + 1
690 U = M
700 GOTO 730
710 T = N
720 U = M - 1
730 IF A(T,U) = Z THEN
GOTO 810
740 IF A(T,U) = D OR A(T,U)
= B THEN GOTO 790
750 IF A(T,U) = C THEN
GOTO 880

```

```

760 IF A(T,U) = E THEN
GOTO 920
770 GOTO 810
780 PRINT CHR$ (7)
790 PRINT "That way is bloc
ked"
800 GOTO 480
810 A(N,M) = Z
820 N = T
830 M = U
840 A(N,M) = Y
850 FOR J = 1 TO 6
: OB(J) = B(J)
: NEXT
860 GOSUB 1180
870 GOTO 440
880 PRINT "You've fallen in
to"
890 PRINT "one of your own
traps"
900 FOR B = 1 TO 2
: A = PEEK ( - 16336)
- PEEK ( - 16336)
+ PEEK ( - 16336)
- PEEK ( - 16336)
: NEXT B
910 PRINT "Booom, urk robot
dead";
: END
920 PRINT "Booom, urk, you'
re dead";
930 END
940 PRINT "You've done it,
well done";
: END
950 A(N,M) = Y
960 HOME
970 R = N
980 S = M
990 W = W + 1
1000 IF W > 100 THEN
RETURN
1010 COLOR= Y
: PLOT M,N
1020 COLOR= Z
: PLOT MO,NO
1030 IF BS = "Y" OR BS
= "y" THEN COLOR= C
: PLOT MO,NO
: BS = "N"
1040 COLOR= Z
: FOR J = 1 TO 5 STEP 2

```

```

: PLOT OB(J + 1),OB(J)      1270 X = X - 1           1430 B(J + 1) = B(J
: NEXT                         1280 A(R,S) = C           + 1) + 2
1050 COLOR= E                  1290 COLOR= C           1440 B(J + 1) = B(J
: FOR J = 1 TO 5 STEP 2       : PLOT S,R           + 1) - 1
: PLOT B(J + 1),B(J)          1300 FOR J = 1 TO 5 STEP 2
: NEXT                         1310 T = B(J)
1060 RETURN                     1320 U = B(J + 1) ✓
1070 FOR I = 1 TO 30            1330 IF A(T,U + 1) = Y
1080 FOR J = 1 TO 29            THEN GOTO 920
1090 COLOR= A(I,J)             1340 IF A(T,U - 1) = Y
1100 PLOT J,I                  THEN GOTO 920
1110 NEXT                        1350 IF A(T - 1,U) = Y
1120 NEXT                        THEN GOTO 920
1130 RETURN                      1360 IF A(T + 1,U) = Y
1140 PRINT "Power, Power, Po    THEN GOTO 920
weerrrrrrr"
1150 PRINT "Your power unit     1370 IF A$ = "W" OR A$
has broken from"             = "W" THEN GOTO 1490
1160 PRINT "extensive use."
1170 PRINT " Game over"
: END
1180 IF X = 0 THEN GOTO 130     1380 IF (A$ = "S" OR A$
0                                = "S") AND A(T
1190 PRINT "Would you like t   + 1,U) = Z THEN
o set a"                         GOTO 1460
1200 PRINT "trap (Y or N)"      1390 IF (A$ = "N" OR A$
"                                = "n") AND A(T
1220 GET B$                     1400 IF (A$ = "E" OR A$
1230 FOR A = 1 TO 10              = "e") AND A(T,U
1240 AA = PEEK (- 16336)         + 1) = Z AND M
1250 NEXT                         > U THEN GOTO 1430
1260 IF B$ < > "Y" AND B$        1410 IF (A$ = "E" OR A$
< > "y" THEN GOTO 130          = "e") AND A(T,U
0                                - 1) = Z THEN
                                         GOTO 1440
                                         GOTO 1490
                                         1420 GOTO 1490
                                         1430 B(J + 1) = B(J
                                         + 1) + 2
                                         1440 B(J + 1) = B(J
                                         + 1) - 1
                                         1450 GOTO 1480
                                         1460 B(J) = B(J) + 2
                                         1470 B(J) = B(J) - 1
                                         1480 A(T,U) = Z
                                         1490 NEXT
                                         1500 RETURN
                                         1510 PRINT " ^ R 0 B
                                         0 T S ^"
                                         1520 PRINT "(0) R 0 B
                                         0 T S (0)"
                                         1530 PRINT "...R 0 B
                                         0 T S(...)"
                                         1540 PRINT
                                         : PRINT "By D. Marris"
                                         1550 PRINT
                                         : PRINT "You are in contr
ol of a small Astro-
Ameculion Robot. Your
robot is the magen
ta block on your radar.
It can only go nor
th, south, east, or wes
t. It can set black
hole traps for other
robots."
                                         1560 PRINT
                                         : PRINT "Your mission is
to guide your robot out
of the area through th
e gap in the walls"
                                         1570 PRINT
                                         : PRINT "The walls are gr
een, there are also
rocks (pink) which no
robot can move."
                                         1580 PRINT
                                         : PRINT "But there is one
more snag. There are
enemy controlled addig
eo robots about. Can y
ou escape from their la
ser guns?"
                                         1590 HOME
                                         : VTAB 10
                                         : HTAB 14
                                         : PRINT "Please Wait"
                                         1600 GOTO 40
                                         1610 TEXT
                                         : HOME
                                         : PRINT
                                         : PRINT "An error has bee
n found"
                                         1620 PRINT
                                         : PRINT
                                         : PRINT "The code is ";
                                         PEEK (222)
                                         1630 PRINT
                                         : PRINT "There is a table
of errors on page 331"
                                         1640 PRINT "of the Apple II
User's Guide"

```

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# To pay or not to pay

IN the two previous issues of *Apple User*, we have discussed various facets of the phenomenon of honorware – software distributed freely, but which you must pay for if you decide to keep it. The system clearly has advantages: At least we can try software out at home before deciding whether to buy it.

However, there do seem to be clear disadvantages for the programmers – namely that they sometimes don't get paid. Apparently, especially in Great Britain, people don't always pay for what they use, despite the wishes of the software author. After all, why should we pay? What is to keep us from getting the benefits without the costs?

Cliff McKnight's article last month mentioned perhaps the single most important motivation for the payments that actually have been posted: Guilt. This month I'd like to mention a few more, hopefully more positive, reasons for paying your shareware debts.

**Paying for honorware is forward-looking:** The benefits of the honorware system are obvious, but the future of the institution is far from secure.

Cliff mentioned the IBM PC shareware products that have been released as commercial mail-order software packages in the UK because of the low percentage of payments from this country. Software that you can obtain free for trial in the USA now has to be paid for "up front" in this country.

But even in the States, products are being withdrawn from the shareware circuit and instead released as commercial products: Fedit is perhaps the most famous, and now Font Librarian has gone the same route. And if programmers are actively turning away from shareware distribution, will new programmers try it at all?

Software authors will probably go on making little programs for their own use and enjoyment, but it is doubtful that they will go to the extra trouble to install user interfaces, write documentation, spend time uploading them on to bulletin boards, or pay postage sending them to user groups.

In short, we won't get anything until we pay for it, and then only what the marketing people in software companies decide we want.

Sending payment for honorware is a vote for the whole experiment. Shareware authors are motivated to write more shareware when they receive letters, not only because of the money, but because of the knowledge that what they've done has helped someone.

## Conrad Gempf argues that honesty really is the best policy

Wouldn't you like to receive a dozen letters in the morning post telling you that you've done a good job? We can keep honorware alive or we can let it die. I know which I prefer.

**Paying for honorware can be rewarding:** Last month we mentioned the case of DiskTop. When you send your registration payment to CE Software, you are given two bonus programs as well, applications not available through any other channel (see Figure I). This kind of bonus is becoming more popular, but it is by no means the only extra obtained by paying for shareware.

Most developers are constantly improving their creations – the honorware system encourages this in a way that the commercial system does not. Payment for an honorware package usually entitles you to upgrades and user support.

Additionally, it is a good bet that the author of your favourite piece of shareware has written other bits of freeware or shareware. If, when you register, you send along a disc and postage, or just send extra money for a disc and postage, you can usually obtain not only the most recent version of the program you know you

want, but also a disc full of new things to evaluate as well.

Figure II shows what Cliff received when he registered as a user of Other with Loftus Becker. Obviously you remain responsible to pay for any of the new shareware which you decide to keep, but this is a very cost-effective method of obtaining new products.

Once you've obtained a disc full of things in this way, you are in an excellent bartering position. Most User Group libraries are willing to trade to get shareware not contained in their collections, and you can usually choose which discs of theirs you want in exchange for a copy of your latest from Programmer X.

In this way, you can amass quite a collection without spending a fortune for User Group discs or on telephone/BBS charges. The programmers are happy because they get the fee and free distribution, the library is happy because the collection is extended, and you are happy because eventually you'll wind up with your own library of inexpensive and useful software.

**Paying for honorware is a lot easier than it used to be:** Some of us are convinced that part of the reason Britain has such a poor record in terms of paying for honorware is because of the difficulty and expense of obtaining a cheque in US dollars in order to pay some fellow in somewhere called Ohio the \$10 we owe him.

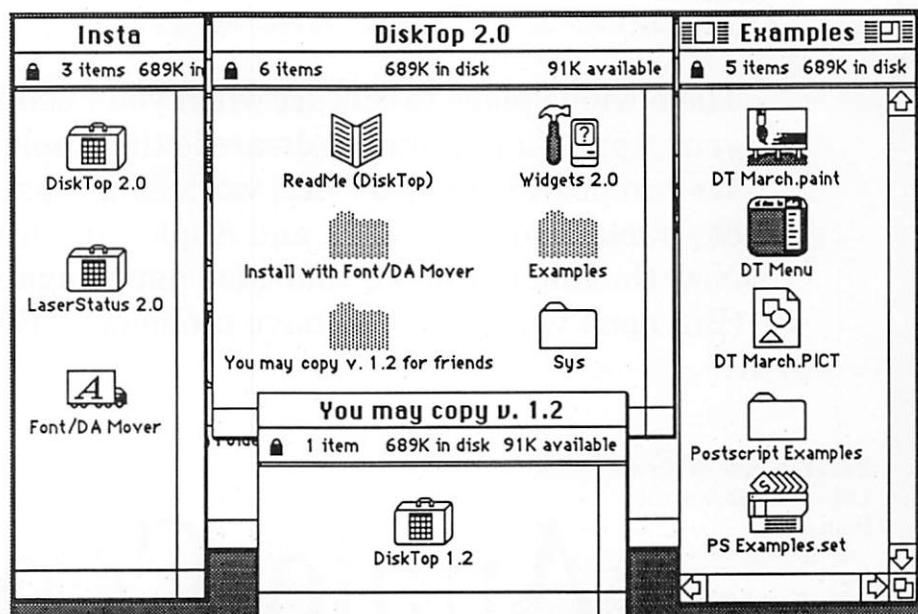


Figure I: What you see is what you get – when you pay for DiskTop

There are now two institutions that make the process easier. The first is the Macintosh User Group UK, which publishes an exchange rate in its magazine MacTimes. The number, typically something like 1.2, is used to calculate how much to send to the Group in pounds.

You just pull down the Calculator and type Fee -divide by- 1.2 -equals-. The Group will need the name of the shareware product, the name and address of the programmer, your name and address and a cheque in pounds.

They will convert to dollars and register you with the author of the software, so that you are eligible for upgrades and so forth, just as if you had sent the dollars yourself.

John Lewis, who is behind this scheme, has agreed to open this offer up to non-members of the User Group as well. The Macintosh User Group can be contacted at 55 Linkside Avenue, Oxford, OX2 8JE, 0865 58027.

MacTel, the Mac bulletin board, has just started a similar service. The magic number can be obtained over the wires on 0602-455444. MacTel can be reached at 15 Elm Tree Avenue, West Bridgford, Nottingham, NG2 7JU, voice-phone 0602-810237.

**Paying for honorware is civilised:**  
It is not just a matter of avoiding the guilt that we feel when we use products whose

Shareware			Freeware		
Name	Size	Kind	Name	Size	Kind
DA Key 2.1.Doc	30K	MacWrit	ATalk Key	1K	document
DA Key 2.15	9K	document	Change Font D.A. 1.03	3K	Patched FD
Date Key 2.0 Docs	4K	MacWrit	Change App	4K	application
Date Key 2.05	3K	FKey Ma	CISNumbers Application	6K	application
Date-Time Key	2K	FKey Ma	Clipper DA 1.0b2	6K	Patched FD
Fontzie Folder	56K	folder	Clipper Key 1.5	4K	document
Install Date Key 1.0	3K	application	Clipper Key 1.5 Doc	4K	MacWrite d
LaunchKey Plus 1.00	5K	document	Clipper Key 1.6	3K	FKey Mana
LaunchKey Plus Docs	3K	MacWrit	Dvorak Keyboard	2K	Patched FD
Other... 3.0 doc	28K	MacWrit	FKEY Runner demo	4K	Patched FD
Other... 3.09	12K	Patched	FkeyMaker Application	5K	application
Time Logger 2.10	22K	Patched	FormFeed Key 1	1K	FKey Mana
Time Logger DA Doc	50K	MacWrit	INIT - Patch _OpenResFile	1K	document
Time Logger INIT 1.46	2K	document	INIT - ResumeINIT	1K	document
TimeLogger INIT 1.1	1K	document	Launch DA Key Docs	4K	document
			Launch DA/FKEY 1.4	4K	FKey Mana

Figure II: Payment for Other produced a lot more

creators haven't been paid. There is also a bit of gratitude involved when a shareware product successfully makes extra room on a disc, or allows us to print a giant banner, or what have you.

Presumably, most of us feel that craftsmen deserve thanks for the job they've

done. If they ask a modest fee, let us pay it with thanks, not because we might feel guilty otherwise, but from gratitude.

Isn't there someone who has written a piece of honorware you're thankful for? Why not let them have their next pint on you?

## Apple Users in Scotland!



Do you have a sick Macintosh?  
Problems with your Apple II computer?  
Printer not working?

The obvious place to contact when you need help with your Apple Computer hardware is the Apple Centre, Glasgow. We can provide field service, workshop repair, maintenance contracts, warranty work and AppleTalk installation. Now that should make your Mac happy again! (But don't wait until you have problems – Before you call us!)



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**Ian Byfield finds an Apple  
in control at the National  
Museum of Photography**

FIREWORKS, fountains and film feature in a new generation of multi-media entertainment put together with Apples.

Indeed visual presentations for pleasure

or to promote products have now become so sophisticated that it is virtually impossible to compile them without a computer.

And it is at the home of more popular media, the National Museum of Photography, Film and Television, that special entertainment programmes are being prepared with a difference at the centre of the creative process.

Curator of Film and Audio Visual, Michael Harvey, puts together special presentations for the Museum's giant Imax

screen. He uses 16 slide projectors, all of which are controlled individually, plus a host of sound and lighting effects.

"You program the Apple to put into operation a series of instructions to, say, switch on and off, flash, or dim to specific levels. The computer also controls at which point these things happen", he said.

The latest result is a six-minute piece called A Museum for our Times about the museum, in Bradford, West Yorkshire, and Imax, the biggest screen in Europe.

With only a little knowledge of computers and Basic, Mr Harvey finds it relatively easy to program the Apple for the productions.

"The day the system arrived, I was asked to do a very simple show, very quickly. My background is as a producer and so I had some knowledge of how such presentations are put together.

"But in order to complete the task I very quickly had to learn the programming language; I found it was easier to pick up than Basic".

He explained the way he goes about producing a presentation - the programming stage is usually reached after the soundtrack has been prepared.

"You get your story together and develop a story board, which is a step by step visual representation of each image which will be on screen.

"Then you have to work out how you create those images and make the computer ensure that effect happens at the right time.

"All the mechanical devices can be made to move to a particular point in the proceedings at once".

There may be a series of slides in the carousels of all the projectors. Any one can be found quickly and projected on to a screen to tie in with the music, sound, lighting effects, and any other slide being shown at the same time. The result is recorded on film.

"There are certain special effects to set up and certain rules to follow. But once you get into the swing of things it is most satisfying."

"People ask me how I feel about using scientific devices to create art.

"It doesn't worry me. You still have trial and error. Once you get used to it, it is just another mechanical object you use to create; it doesn't separate me from the job. It is a tool."

"After a while you forget about the process and just get on and do it. It can start to respond to what you want to do."

The museum uses System 4000 from multi-media experts Electrosonic. Managing director Bob Simpson explained that the systems were designed especially for presentations of all kinds, such as conferences and seminars, as well as in theatres and outdoors. Electrosonic itself has been using

# For your eyes only



The National Museum of Photography, Bradford, W. Yorkshire



Slides  
from Light  
Fantastic

Apple computers since 1980 as the basis both for audio visual, multi-image and multi-media programming.

Once the company had committed itself to using computers, it decided to work with just one type of machine.

The Apple II was chosen because of its wide international distribution, it was the right size for most applications and it lent itself to accepting additional cards.

Bob Simpson said: "The communications requirements of these applications are such that you cannot really get a reasonable result just using the standard computer cards. All our programs depend on these add-on cards to provide the time code and high-speed communications facilities".

The 4000 package, for instance, includes an Apple IIe, two disc drives with disc controller card, Electrosonic communications card, Electrosonic clock card, 12in monitor, and Esclamp III - the language used to program the Apple to drive the other devices.

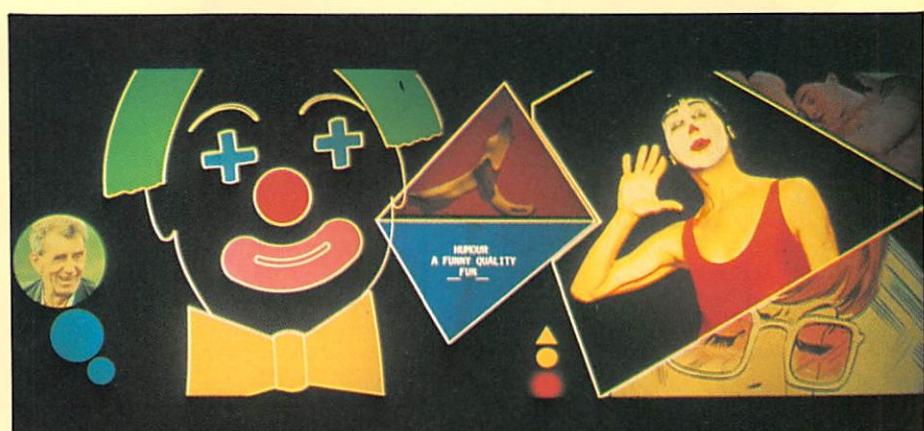
The cards and the language are available separately for existing Apple Plus and IIe users. Esclamp (Electrosonic Computer Language for Multivision Programming) is disc-based and self booting.

Events are stored as cues, each of which is a statement that can include two different projector commands and the time to the next cue.

The 1,100-cue capacity in working memory is sufficient for most audio/visual programs says Electrosonic. Unlimited cue capacity is available on disc, and working memory can be expanded to 3,600 cues by the addition of a memory card.

Cue, clock time and fade instructions can be edited. And the program listing allows for plain text remarks to be included. The activities of up to 36 auxiliary devices can also be programmed.

The monitor can display lamp status, slide tray position, tab status, cue contents, program catalogue, program listing and the command syntax. Program commands are



abbreviated to use the minimum number of key strokes for cue entry.

Most of the programs sold are used for shows employing multiple slide projectors. But the firm has been involved in a great deal of other mixed media presentations controlling lighting effects, fountains, fireworks, searchlights, and even animated figures.

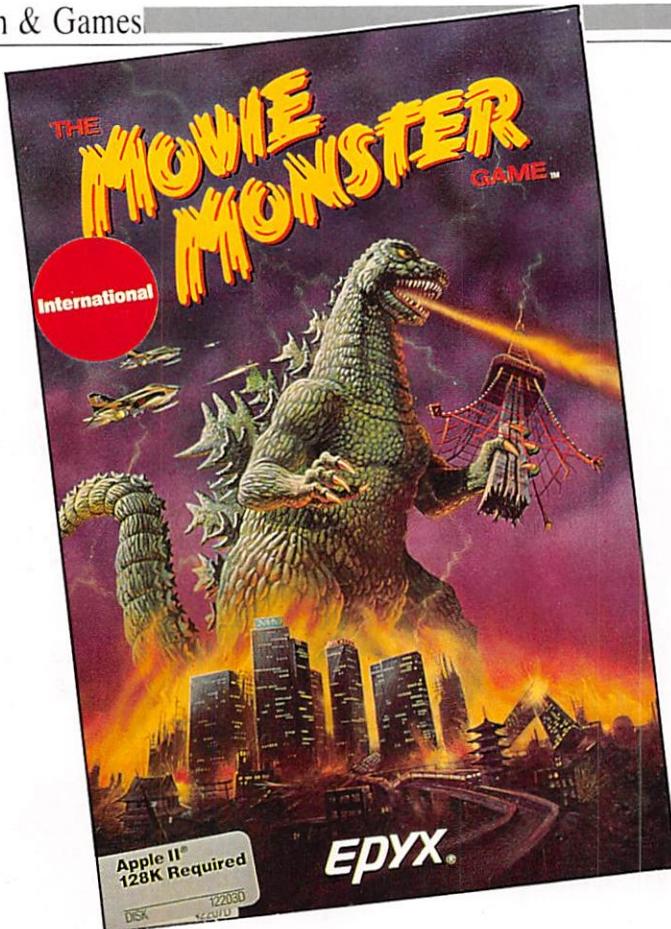
And the company is not above

producing special presentations itself. Its visual extravaganza, Light Fantastic, recently had a six month season at the museum.

Meanwhile Mr Harvey is preparing a new presentation featuring the work of the museum's Fellow in Photography, Faye Godwin, who specialises in landscapes - a branch of the art considered perfect for the Apple-based multi-media shows.



The System 4000  
package with  
Apple IIe



THE lights dim, the curtain lifts. A few adverts flash across the screen, then the plot of the monster movie starts to unfold. As the huge creature stalks the city you grip the edge of your seat...

Actually, I never gripped the edge of my seat. I was always too busy avoiding the ice-cream cartons as I huddled on the floor. I was the one who was terrified by Bambi.

The Movie Monster game starts just like the old days at the cinema, complete with lights, curtains and adverts before a series of text descriptions which set the scene. At the end of the game there are some final words before the credits roll and the lights come up.

Before starting out on the road to fame you have to choose the storyline of your epic. You have a choice of six monsters, six locations and five plots. This means that you have a choice of 180 different games in which to fulfil your wildest monster dreams.

The monsters are headed by the world famous Godzilla. In fact, as far as I can tell he is the only genuine star, the others being typical of the genre but not (yet) box office pin-ups.

Spectra, the giant wasp, and Tarantus, the giant spider, represent the insects while Mechatron understudies for all the robots-on-the-rampage. The Glog is a none too subtle double for the Blob, a 1958 "little piece of glop" which co-starred Steve McQueen.

The reason I can drop such interesting snippets of cinematic gossip is that the manual contains a potted history of monster movies to put you in the picture.

The only monster which doesn't ring any bells either from reading the notes in the manual or from any other source is Mr Meringue, a "tasty hunk of monster" they

**Title:** Movie Monster  
**Author:** Jon Leupp and a cast of thousands  
**Price:** £19.99  
**Publisher:** Epyx  
**Requirements:** Apple II with 128k  
**Supplier:** US Gold, Units 2 & 3, Holford Way,  
 Holford, Birmingham B6 7AX  
**Tel:** 021-356 3388

say, even though he "looks like a cream puff".

Enough of the cast and scenery, what about the plot? You play your chosen monster in one of six major cities. You can go berserk, smashing everything in sight or try one of the more subtle character parts.

One scenario is a simple escape – try to leave the city before someone gets you. More subtle still, you can search for your missing offspring or locate and destroy a landmark. You can also choose to take an extended lunch-break and find out what monsters really like to eat.

The manual contains maps of the various cities, although to be honest they are little more than boxes showing water (river or sea) and rough locations of the various landmarks. This is fine if you are playing with a colour monitor because you can work out roughly where you are by striking out until you find the blue bits.

In monochrome there is little to distinguish between grassy bits and water. Fortunately none of the cities is very big so you can easily find an edge by walking straight in any direction, but it's unlikely that you would stay alive long enough to walk all round the city.

The monsters have different characteristics so some are easier to work with than others. Mechatron, for example, is powerful, tough and of average speed but he

# Monsters on the march

doesn't recover from damage. On the other hand, the Glog recovers fast but has only average strength.

Incidentally, fast is the programmers term, not mine. Three speeds are listed for the monsters: Fast, average and slow. I would say they were slow, very slow and hardly moving at all. I suppose that is meant to show their great ponderous size but it doesn't make for an exciting game.

The program needs 128k to run but I can't see that you get anything better for the size. The graphics aren't marvellous – not double hi-res despite the memory requirement – and the monster shapes seem to be defined in blocks, so you get strange effects when they pass over certain colours, particularly around water. I've seen better running on 64k or even 32k machines.

The game uses both sides of the disc so you have to do a fair amount of swapping. All the atmospheric adverts, text and so on come on the first side after choosing the monster, location and plot. The action is all on the flip side but you have to go back to side one for the finale and your score.

No high scores are saved and if, like me, you think the program has hung after your death or victory and indulge in a few key presses you can miss your score as it takes the buffered input. I'm not usually impatient and I am not a nimble-fingered arcade addict – but this was slow.

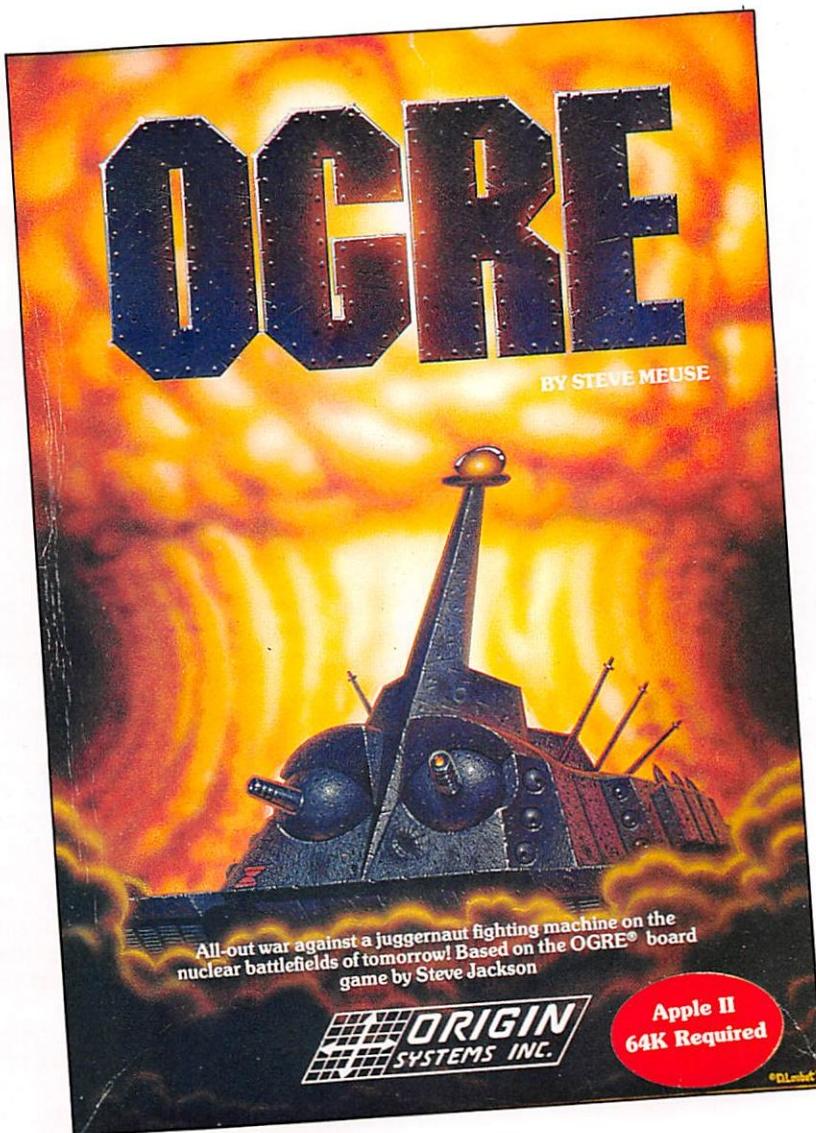
At first glance, Movie Monster was an interesting idea. Why not be the monster for a change rather than zap hordes of alien beings and other assorted monsters?

After a few plays however, I had second thoughts about the wisdom of encouraging people to smash famous buildings, cars and innocent passers-by. Listening to the kids saying "Quick! There's a person – squash him!" and gloating because they had demolished the Empire State Building began to have sinister overtones.

All in all, I can't recommend Monster Movie, although I have to admit that my kids liked it. The final insult was the manual's blurb about London. After a reasonable few lines about London's history and present situation they say its trademarks are double-decker buses, taxis and "the dense London fog".

No wonder all those American tourists arrive with the wrong impression.

**Denise McKnight**



OGRE is a game of mechanised warfare set in the 21st century. A cybernetic fighting unit called the Ogre rules the battlefields. Totally computer-controlled, and completely merciless, it is a cold, calculating war machine, whose prime objective is the destruction of your only Command Post.

Your objective is to protect yourself – and destroy the Ogre. Achieving this is pretty hard when it is you versus the computer. But you can choose to be the Ogre and have the computer assume the role of defence, or you can even choose a two-player game if you want some human competition.

Most of the screen is taken up by the map display which is made up of a hex sheet reminiscent of table-top games. The total play area is two-screens worth – you can flip between the two halves vertically or scroll up or down. Occupying about one fifth of the screen is your options display.

The game is played with a little black arrow cursor, which is moved around via keyboard, joystick or AppleMouse II. The mouse option works particularly well and makes the game very easy to play. Ogre utilises pull-down menus, as well as the usual clicking and dragging features associated with Mac games.

In fact this is just like a Mac game, and

**Program:** OGRE  
**Price:** £19.95  
**Supplier:** Origin Systems c/o Microprose, 2 Market Place, Tetbury, Gloucestershire GL8 8DA.  
**Tel:** 0666 54326  
**Requirements:** Apple II with 64k.

it's very impressive indeed. I wish more companies would adopt the system, as it makes play easier and faster.

Initially the terrain is pretty blank. You can start filling it up with various objects such as nuclear craters (impassable), rubble, gun emplacements, mobile infantry (rather like the ones in the sci-fi novel Starship Troopers) and various tanks, as well as your Command Post.

Once you have created a field you can play it, save it to disc, load a previously saved one or use one of the game's preset options. Then the battle commences.

Within each side's turn are various movement and attack phases. During the former, any pieces that haven't been disabled can move up to their maximum limit.

To get information on a particular unit, just click on it and statistics will appear – moves allowed, attack strength, defence strength and so on.

# The all action Ogre

You can even ask for the piece's movement and firing ranges to be graphically shown on the play area. Firing is accompanied by good sound effects and followed by a status report.

You can choose which part of the Ogre to attack, such as its treads, missiles, or guns. Some take several hits to disable or destroy, depending on which of the two types of Ogre you are up against. Added to this you can decide the method and distance of your attack, and there's even a random factor for good measure.

A total Ogre victory occurs if the Ogre destroys your Command Post and all your other pieces: A marginal Ogre victory is awarded if it destroys the Command Post but is itself destroyed before it can escape. These are just two of the various degrees of success and failure given at the end of the game.

Included in the package are a well laid out, clean Play manual and another concerning Strategy and Notes. Also provided are cut-out badges for the various types of attacking unit. These have room on them for little yellow spots – radiation detectors, which come in a protective black bag.

The spots are designed to respond to gamma radiation from Cobalt 60 and electron beam radiation, which make them go red. Luckily mine are still yellow, but I'm told that after a few weeks of exposure to sunlight they turn red anyway! Now that's worrying.

Apart from the novel packaging the game is great fun to play, even for those not into strategy games. The display is very clear and the gameplay fast and absorbing, although as far as strategy games go it is not a very exciting concept.

Yet Ogre has instant appeal which most strategy games lack. With the more traditional type of strategy game, a lot more time and effort is required before you really start to enjoy it. With Ogre, you can be playing a full game in a few minutes. I highly recommend it.

Leon Seltsikas

**ELECTRIC CRAYON™**  
**THIS LAND IS YOUR LAND**

Computer  
Coloring Book  
by Brian Rice  
Illustrations by Rick Incrocci

"Point and click" to choose colors and fill in pictures  
Prints pictures in color  
Prints picture calendars  
30 pictures on disk

Apple  
5 1/4" Disk  
128K Required

POLARWARE™

THE idea of an electronic colouring book has been around for some time. *Apple User* reviewed Color Me in May 1984, for example. By a strange coincidence, that issue of *Apple User* featured the Apple IIc whose 128k seemed quite big at the time.

Now from PolarWare (nee Penguin Software, but the book publishers got nasty about the name) come three Electric Crayon packages. These all require 128k in which to run, suggesting that Parkinson's Law applies to computer memory too.

The three packages each have a theme there's ABC's, Fun on the Farm, and This Land is Your Land. In this last case, the land in question is America, but the pictures have a fairly broad appeal.

The ABC set contains 26 pictures, as you might expect. They are well-drawn, and they're not always the obvious ones. It's A for Acrobat rather than the usual A for Apple.

Fun on the Farm and This Land is Your Land both have 30 pictures. These too are well drawn, with a different artist being responsible for each package.

The possible actions are depicted at the top of the screen and the two direction arrows control movement through the set of pictures. This can be rather slow if the pictures have already been coloured, because you have to wait for all the colour fills to be performed before you can move to the next picture.

The alphabet keys can be pressed to move to a specific picture, but you still have to wait for the colour fills between pictures. With ABCs, the alphabet keys move to the obvious picture, but with the other packages it's not quite that simple.

For example, T will take you to The Ozarks; press T again and you get The Redwoods. Still, if you can remember the

Program: Electric Crayon ABC's; Fun on the Farm; This Land is Your Land

Price: £18.99 each

Supplier Polarware/MGA Microsystems, 140 High Street, Tenterden, Kent TN30 6HT

Tel: 05806 4278

Requirements: Apple II with 128k and preferably colour display

titles it's a quicker way of getting to a picture than cycling through using the arrows.

The Erase option clears all the colours from the currently displayed picture, so they can be recoloured time and again. The Stop option quits the program after saving all the current colours of the pictures. The Oops option undoes the last fill, so mistakes can be rectified.

Colour is selected from the palette at the bottom of the screen. Also, the current colour can be mixed with the entire palette, so in principle up to 256 colours could be produced. Clicking the Mix option a second time returns the palette to the pure colours.

You can move the selection arrow and the crayon using keyboard, joystick or even the IIc mouse. This needs to be set up at the beginning, as does the choice of printer (ImageWriter or Scribe) and printer slot. However, once it's set up for your configuration you don't have to bother again.

The other thing available from the set-up menu is the calendar option. With this selected, any picture you print will have the chosen month's calendar printed beneath it.

The only slight draw back with this is that the month and year is input in the set-up menu which can only be accessed at boot-up. To produce a complete year's calendar you'd have to boot up a dozen times. The programs support a colour prin-

# Tempt your palette

ter, but if like us you've only got black-and-white then the pictures are printed without any fill detail. The idea is that you (or preferably your kids) can then colour them by hand.

However, anything coloured black will be printed black, and any colours mixed with black will have the shading printed.

For colour display, we used a Sony Trinitron TV which gives reasonable results. In fact, the colour from the IIe was very good, but the output from the IIc was a little strange browns tended to look green, which produces some very strange hair.

This is obviously a function of the machine, not the packages, and it's only because we have both machines that we realised the difference. If it had been the IIe producing strange effects, it would have been relatively easy to fine-tune.

However, opening the IIc and trying to locate the relevant pots to tweak didn't seem worth the effort.

Well, that's the technical side, but what do kids think of it? We let a group loose on the packages and their comments were as follows: "It's good fun. Younger children would need to have it explained to them. The colours are very nice and there's lots of pictures to colour in."

One of the kids also noticed that the B on the Balloon picture shown on the front of the box was back-to-front. On closer examination, the photo has obviously been printed in reverse unless the children shown were using a unique combination of back-to-front IIc and ImageWriter the latter apparently not needing a power lead. It's irrelevant to the contents, but it shows what kids notice.

From a parent's point of view, Electric Crayon has the advantage that it never appears on the wallpaper or carpet, never needs sharpening or clean water providing and (hopefully) never falls down behind the radiators.

It doesn't let kids learn the skill of staying within the lines, but they do need a fair amount of coordination to position the crayon accurately in some of the small details.

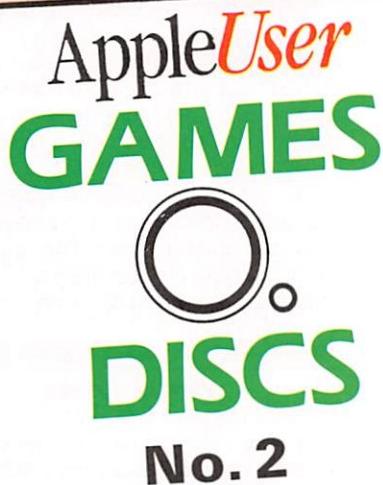
All in all, these packages are probably the best set of electronic colouring books we've seen. What's more, if you get the kids organised they could provide you and your relatives with calendars for years to come. □

Denise McKnight

# AppleUser

## SPECIAL OFFERS!

The first Apple User Games Disc was one of the most popular packages we've ever offered our readers. Now comes Apple User Games Disc No. 2 – more great games that we thought were ideal but which were just too long to be printed in the magazine. And the price is still £5.95 for 7 games – that's just 85p a game!



**ALIEN ZAP** – Good, old-fashioned machine code arcade game by Peter Ibbotson. Clever Apple graphics, and plenty of action.

**SATELLITE CONTROL** – A game of skill on the hi-res screen by Edwin Long. You're challenged to change the shape of a shuttle's orbit.

**LIFE** – This ubiquitous game has seen many forms. This latest, by Gerrard Manning, uses the hi-res screen to create new challenges.

**TYPING TEST** – A nice, simple game from Lawrence Tan, but one that will help improve your typing and keyboard skills. Ideal for beginners.

**CARD TRICK** – The computer is an excellent medium for performing feats of sleight of hand. Play tricks with cards with J. Taylor.

**NOUGHTS & CROSSES** – The graphics may not be sensational, but Frank Lewis shows how to play a fast game using only the lo-res screen.

**THE PERILS OF PRINCESS EMMELINE** – Denise McKnight invites you to face unknown foes as you immerse yourself in this adventure.

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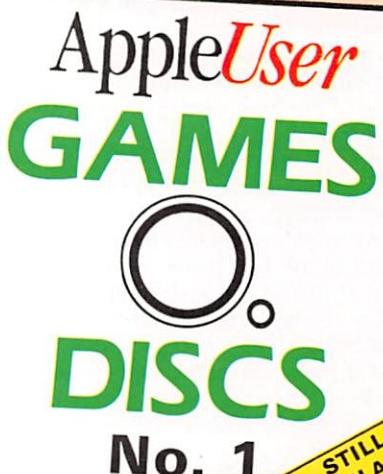
**DINGHY SAILOR** – We've all seen flight simulators. Now for something completely different. See how you can handle this sailing dinghy.

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**3D ENERGY FIELD** – A superb three dimensional maze game. Can you escape from the labyrinth or will the energy field catch you?



TO ORDER, PLEASE USE THE FORM ON PAGE 73

# Accessing random record files

WE started our tour of CP/M's disc function calls last month by looking at how to open, read, write and close simple sequential files.

We also began a listing of a word counting utility program which uses these BDOS calls. The full listing using 8080 mnemonics is given now for those who know how to enter it but if you do not we're afraid you will have to wait until next month when we cover the use of CP/M assemblers and DDT.COM.

Sequential files, while simple to use, impose the restriction that we can only read or write them from the start, one record after another.

Often we will want to get at a particular record in the middle of the file, or we'll want to add information to the end of an existing file. To do this we must use random record access.

## Reading a file

Let us first look at reading a file. As with sequential access we use BDOS function 15 (open a file) to tell CP/M which file we are going to be reading. We use it in exactly the same way as described last month.

Note, however, that instead of using function 20 (read sequential) to read data starting from the beginning of a file, we will call function 33 (read random) to extract information from the middle.

This would obviously be a much more useful method than reading records sequentially if we were writing a database program, for example.

As with read sequential, we pass to the BDOS the address of the FCB in memory. This time, though, we put the record number we want to read into the random record field of the FCB (bytes 33 and 34, referred to as r0 and r1 respectively).

This is a 16 bit number, stored in the usual 8080/Z80 order of less significant byte first (r0) and more significant byte second (r1). Byte 35 (r2) must be zeroed, as a non-zero value indicates an overflow beyond the end of the file.

So, for example, if we wished to read record number 67 (43h) from a large file B:OURFILE.DAT (counting from the start of the file with the first record as number 0), we would lay out our Memory FCB as shown in Figure I.

Function 33 (read random) will then read the record from disc into our specified DMA

**Colin Foster and  
Robert Neale with  
Part 10 of their  
series on CP/M**

buffer (or into the default DMA buffer at 80h if we have not previously specified one using function 26).

On return, register A will contain a code indicating whether the operation was successful. The values this can take and the meanings are listed in Figure II.

We use function 34 (write random) in a similar way. Again we set up an MFCB complete with r0, r1 as record number in bytes 33 and 34. Calling the function writes the data in our DMA buffer to the specified record position in the file, overwriting exactly the data which was there previously.

The return codes from this function and their meanings are also shown in Figure II.

If we wish to create a new file, then as before we must use function 22 (make a file) rather than open file. Using random access, however, we can write data to it in any order, rather than one record after another from the beginning as we had to with sequential access.

So, for example, we could write data to record numbers 2, 45, 23 and 14 only, and in that order. Our file would then have record number 45 (the highest written) as the last one and all the records we didn't put data into will be present – but blank.

If we want to add new information to

the end of an existing file, maybe appending data to a sequential file, we can use function 35 (compute file size) to help us.

If we supply this function with the address of our MFCB as before the BDOS will fill in the r0, r1 and r2 bytes for us, with the number of records in the file. This is the same as the number of the record immediately following the end of the file, as the numbering starts with zero.

Note that if r2 is returned non-zero then the file already contains 65536 records, which is the maximum file size allowed by CP/M. This is why the word counting utility program sets aside four bytes for counting characters since we have elected to use binary coded decimal to do so.

The use of four bytes to count records and words follows as a consequence to make the coding easier. This situation of having an 8Mb file is unlikely to occur on a floppy disc, but could occur on a fixed disc.

## Writing data

If we now call write random, we can write our data straight into a new record which will be attached to the end of the file. We are now free to add as much data as we want, so long as we increase the value of r0 and r1 by one each time thus faking sequential access.

It is not necessary to call function 16 (close a file) if we have only been writing to existing record positions within a file. However, if we have either created a new file or added data to the end of an existing one we must call close file once we are

MFCB:	+0	2	code – 0=current logged, 1=A: etc
	+1	OURFILE DAT	Filename and type in Upper case
ASCII	+12	0	Extent number
	+13	0	Reserved by CP/M
	+14	0	Record count
	+15	0,0,0	Data allocation blocks, d0..d15
		0,0,0	
		0,0,0	
		0,0,0	
	+32	0	Current record byte
	+33	43,0,0	Random record number

Figure I: MFCB for random access of record 67.

<b>Value</b>	<b>in A Random read</b>	<b>Random write</b>
00	operation successful	operation successful
01	reading unwritten data	not returned by write
02	not returned in random mode	not returned in random mode
03	cannot close current extent	cannot close current extent
04	trying to seek unwritten extent	trying to seek unwritten extent
05	not returned by a read	directory full
06	trying to seek past physical end of file	trying to seek past physical end of file

Figure II: Return codes for random read/write functions

finished or the information in the file's directory entry will be incomplete.

This is unfortunately only a very brief examination of random record access. Some of the more subtle aspects, such as combining sequential and random access, make good exercises in programming.

Random access is an extremely powerful feature of CP/M but also holds many pitfalls for the unwary. The best way to learn more – as with anything – is to try doing it yourself. And don't give up when your first efforts fail!

A good debugger is invaluable for this sort of work. Next month we will cover the use of DDT.COM which is useful for debugging 8080 code but is very tedious (next to impossible) to use if trying to debug Z80 code. There are several such products available for Z80 code debugging in the public domain which are available for a nominal charge through the various user groups. Try CP/M Users Group UK at 11, Sun Street, Finsbury Square, London, EC2 2QD, if you need one.

### Directory search

The last topics within the BDOS disc functions are those of directory searching and controlling disc accessing.

Obviously we will often need to know whether a file exists on the disc – for example, if we have been asked to read it or to make sure that we do not create a file with the same name as an existing one by mistake.

To do this, we use BDOS functions 17 and 18 (respectively, search for first match and search for next match).

If we supply an MFCB containing the name of the file we want to look for, search for first match will search the disc directory until it finds a match.

It will then return the directory record containing the first FCB entry which matches with the usual register A codes of 0, 1, 2, or 3 to give the quadrant of our DMA buffer which contains it. It will correspond to the first extent of the file we are looking for.

If CP/M cannot find the name in the

directory which we specified in the MFCB then the function will return with a value of 0FFh in the A register.

Once we have found the first extent in the directory which matches our filename we can repeatedly use search for next to look for any other extents the file may have.

This function is used in exactly the same way as search for first, and returns the directory record containing the next extent and the appropriate directory code in register A in the same way.

Both these functions will accept wildcards in the filename, allowing us to use ambiguous filenames. We can use a question mark in place of any or all of the letters in the filename in our MFCB; this will force CP/M to ignore those letters when it matches filenames.

Thus, for example, searching for OURFILE???? will return matches with OURFILE.DAT, OURFILE1.DAT, ... and OURFILE3.BAK if these are on the disc.

If the drive entry in the MFCB (byte 0) is a question mark, then a supersearch is made on the current default drive for matches with files in all user areas. Normally, only the current user area on the specified drive is searched.

Associated function calls are 19 and 23, which are delete a file and rename a file respectively. The first of these, as its name suggests, will make the drive bytes in all the extents of the file we specify in the MFCB into E5h which signifies to CP/M a deleted extent.

The file will no longer be returned in a directory search and the directory and data space occupied by it on the disc will be reclaimed as unused by the BDOS. This means that when data is next written to disc, or a new extent of a file is opened, the old information is likely to be overwritten.

Therefore, if you ever delete a file by mistake, it is vital that you undelete it by changing the drive E5h bytes in all the extents back to a valid user number (0..15) before using any write operation on that disc.

Disc repair and sector edit programs will allow you to do this although on the Apple most operate under the DOS 3.3 or ProDOS operating systems and so you need care in

selecting which sectors; if possible stick to using physical sectors rather than software skewed (logical) sectors. You will find the directory on track 3.

Function 23 (rename a file) requires us to supply an MFCB somewhat different to the normal type. The first 16 bytes contain the drive and filename of an existing file as usual, but the second 16 must also contain a drive and new filename, laid out in exactly the same way as the entry in the first 16 bytes.

The file specified by the first filename, on the drive specified by byte 0, will then be renamed to the second name. Although a drive value must be specified in byte 16 it is not used, obviously the file name is on the same drive as the old one.

### System reset

Function 13 (reset disc system) is vitally important. This requires no parameters and returns no results. As its name suggests it resets the BDOS to a state in which no drives have been logged in and sets the status of all drives to R/W.

This means that the first time that we access a disc or drive after a call to function 13, the BDOS will automatically log it to allow us to write to it. We must reset the disc system in this way whenever we think a disc may have been changed in one or both of the drives.

If we change discs without telling the BDOS that we have done so then CP/M will abort with the infamous

'BDOS Err on x: R/O'

message the first time that we attempt to write data to the new disc.

We can find out which disc drive is currently selected as the default by calling function 25 (return current drive). This requires no parameters and returns the number of the current default drive in register A; 0 for drive A; 1 for drive B; and so on.

Alternatively, we can just look at the byte at address 4 of the SPA which is where CP/M stores the default drive number.

The default drive is the one used in disc operations where we put a 0 in the drive entry of our MFCB (in byte 0) rather than specifying either A: or B: or so on explicitly.

We can then use the related function 14 (select drive) to change the current default at any time to switch the I/O from our routines to another disc.

There are several other assorted BDOS disc functions which are mainly concerned with file attributes and system data. We have, however, looked in detail at all of the more complex functions which you are ever likely to need in normal programming.

Functions such as get DPB address and get allocation address are really only of interest to system programmers who need to delve deeper into the workings of CP/M. ▷

```

; Word Counter Program.
; when invoked by the CCP takes the command tail
; and counts words and characters in that file.
;
0005 = CPM equ 5
005C = FCB equ 5Ch
00A = Lf equ 0Ah
00D = cr equ 0Dh
;
0100 org 100h
0100 3A5D00 lda FCB+1 ;check first char of
name
0103 FE20 cpi 20h ;is it blank?
0105 CA4202 jz error1
0108 0E0B mvi c,0bh
010A 215D00 lxi h,FCB+1
010D 7E loopch: mov a,m ;check name for wild
cards
010E FE2A cpi '*'
0110 CA4B02 jz error2
0113 FE3F cpi '?'
0115 CA4B02 jz error2
0118 23 inx h
0119 0D dcr c
011A C20D01 jnz loopch
011D 0E0F mvi c,15
011F 115C00 lxi d,FCB
0122 CD0500 call CPM ;open the file
0125 3C inr a ;0ffh goes to 0
0126 CA5102 jz error3
0129 AF xra a ;zero accumulator
012A 327C00 sta FCB+32 ;zero record counter
012D 0E0C mvi c,0bh
012F 216802 lxi h,wordcount+0bh
0132 77 loopz: mov m,a
0133 2B dcx h
0134 0D dcr c
0135 C23201 jnz loopz
0138 47 mov b,a ;init the 'last char
type'
0139 0E14 loopr: mvi c,20
013B 115C00 lxi d,FCB
013E C5 push b
013F CD0500 call CPM
0142 C1 pop b
0143 A7 ana a ;check value of
accumulator
0144 C2DA01 jnz EOF ;if not zero then end
of file
0147 11C202 lxi d,string5
014A 0E09 mvi c,9
014C C5 push b
014D E5 push h
014E CD0500 call CPM
0151 216802 lxi h,reccount+3
0154 CDC601 call increase
0157 216502 lxi h,reccount
015A CD0F02 call wrdec
015D E1 pop h
015E C1 pop b
015F 0E80 mvi c,80h ;counter for chars in
record
0161 217F00 lxi h,7fh
0164 23 nextch: inx h
0165 0D dcr c
0166 CA3901 jz loopr ;get the next record if
need be
0169 7E mov a,m ;get the char
016A E67F ani 7fh ;clear the high bit
016C FE20 cpi 20h ;is it a space?
016E CAB501 jz eow
0171 D27C01 jnc letter
0174 FE0D cpi cr
0176 CAB501 jz eow
0179 C36401
017C E5 letter: jmp nextch ;ignore if control char
017D 216402 push h
0180 CDC601 lxi h,charcount+3
0183 E1 call increase
0184 FE2E pop h
0186 CAB501 cpi '.'
0189 FE2C jz eow
018B CAB501 cpi ','
018E FE3F jz eow
0190 CAB501 cpi '?'
0193 FE21 jz eow
0195 CAB501 cpi '!'
0198 FE3A jz eow
019A CAB501 cpi ':'
019D FE3B jz eow
019F CAB501 cpi ';'
01A2 FE5D jz eow
01A4 CAB501 cpi ')'
01A7 FE7D jz eow
01A9 CAB501 cpi '('
01AC FE29 jz eow
01AE CAB501 mov b,a ;store as 'last char'
01B1 47 jmp nextch
01B2 C36401 xra a
01B5 AF eow: cmp b
01B6 B8 jz nextch ;ignore if last char
01B7 CA6401 was also eow
01BA 47 mov b,a ;else set b as eow flag
01BB E5 push h
01BC 216002 lxi h,wordcount+3
01BF CDC601 call increase
01C2 E1 pop h
01C3 C36401 jmp nextch
01C6 F5 increase: push psw ;store the char
01C7 C5 push b
01C8 0E05 mvi c,5
01CA 0D loopi: dcr c
01CB CAD701 jz endi
01CE A7 ana a ;clear the carry
01CF 7E mov a,m ;get present count
01D0 3C inr a
01D1 27 daa
01D2 77 mov m,a
01D3 2B dcx h
01D4 DACA01 jc loopi
01D7 C1 endi: pop b
01D8 F1 pop psw
01D9 C9 ret
01DA 11CF02 EOF: lxi d,string6
01DD 0E09 mvi c,9
01DF CD0500 call CPM
01E2 0E04 mvi c,4
01E4 215D02 lxi h,wordcount
01E7 CD0F02 call wrdec
01EA 117B02 lxi d,down
01ED 0E09 mvi c,9
01EF CD0500 call CPM
01F2 11E102 lxi d,string7
01F5 0E09 mvi c,9
01F7 CD0500 call CPM
01FA 0E04 mvi c,4
01FC 216102 lxi h,charcount
01FF CD0F02 call wrdec
0202 0E10 mvi c,16 ;now close file
0204 115C00 lxi d,FCB
0207 CD0500 call CPM
020A 3C inr a ;0ffh goes to 0
020B CA5702 jz error4
020E C9 ret
020F 0600 wrdec: mvi b,0 ;flag for space rather
than zero

```

```

0211 0E04      mvi   c,4
0213 7E      loopw:    mov   a,m
0214 F5      push  psw
0215 1F      rar
0216 1F      rar
0217 1F      rar
0218 1F      rar
0219 CD2602    call  nibble
021C F1      pop   psw
021D CD2602    call  nibble
0220 23      inx   h
0221 0D      dcr   c
0222 C21302    jnz   loopw
0225 C9      ret
0226 E60F      nibble: ani  0fh
0228 F5      push  psw
0229 A7      ana   a
022A C23302    jnz   print
022D B0      ora   b
022E C23302    jnz   print
0231 F1      pop   psw
0232 C9      ret      ;do nothing if first and
zero
0233 F1      print:   pop   psw
0234 C630    adi   30h
0236 47      mov   b,a ;flag in b that printing
begins
0237 5F      mov   e,a
0238 C5      push  b
0239 E5      push  h
023A 0E02    mvi   c,2
023C CD0500    call  CPM
023F E1      pop   h
0240 C1      pop   b
0241 C9      ret
0242 116902    error1: lxi  d,string1
0245 0E09    general: mvi   c,9
0247 CD0500    call  CPM
024A C9      ret
024B 117E02    error2: lxi  d,string2
024E C34502    jmp   general
0251 119702    error3: lxi  d,string3
0254 C34502    jmp   general
0257 11A802    error4: lxi  d,string4
025A C34502    jmp   general
025D wordcount: ds   4
0261 charcount: ds   4
0265 reccount: ds   4
0269 4E6F206669string1: db   'No file name given'
027B 0D      down:    db   cr
027C 0A      db   lf
027D 24      db   '$'
027E 57696C6420string2: db   'Wild cards not allowed'
0294 0D      db   cr
0295 0A      db   lf
0296 24      db   '$'
0297 46696C6520string3: db   'File not found'
02A5 0D      db   cr
02A6 0A      db   lf
02A7 24      db   '$'
02A8 4572726F72string4: db   'Error when closing file'
02BF 0D      db   cr
02C0 0A      db   lf
02C1 24      db   '$'
02C2 0D      string5: db   cr
02C3 5265636F72    db   'Record no: $'
02CF 0D      string6: db   cr
02D0 0A      db   lf
02D1 0A      db   lf
02D2 4E6F2E206F    db   'No. of Words: $'
02E1 0D      string7: db   cr
02E2 4E6F2E206F    db   'No. of characters: $'
02F6 end

```

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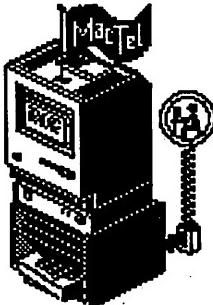
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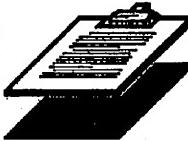
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# PROBLEM PAGE

**TONY HASEMER**

*This month's column  
was inspired by  
letters from John Hunt,  
Barbara MacKie and  
Adrian Demaid*

## The cat sat on the Mac

IT is important to keep the top vents of your Mac clear of obstruction (coffee cups, newspapers and so on) especially if you leave the machine on for extended periods. Blocking them can lead to sudden failure of the internal power supply.

I have a very good friend whose cat sleeps on his Mac. It is a black cat, and you might think it inevitable that he would block the vents.

He doesn't, because the top of the Mac is too small for him actually to stretch out on, so he has to sleep sitting up, his nose and ears irritably awtwitch from the warm updraft.

Sometimes, probably being half dead on his feet by the time he has climbed on the chair, the desk and the disc drive to reach his goal, he nods off while still facing backwards. Then my friend has to move his tail out of the way of the screen, and to hold it there with a blob of Blu-tack.

The cat will do this even on hot days, the sun streaming through the window on to his back and making him sweat from every paw. Sorry, pore. If your cat does this too, you should probably buy a fan to go inside your computer.

### Finders keepers

DOES your Finder sometimes irritate you? For example, do you snarl every time it asks "Do you really want to remove the application XYZ"? The new Finder (version 5.4 and up) has a special LAYO resource which

allows you to change many of the Finder's defaults. It allows you, among other things, to put a stop to the warning messages for good, to have the names of files and folders displayed in a different font, or to have the desktop windows appear in new places and in new sizes.

To make use of the LAYO resource you need ResEdit, an Apple product available from your dealer or from many public bulletin boards. If you've been following Duncan's exploits over the last few months you'll have a good idea of what to expect.

Here's what to do. First of all, copy your System Folder on to another disc. That way you'll be able to restore your Finder to its original form if things go wrong. Start up your Mac using the disc whose Finder you want to change, then insert a disc which carries ResEdit.

Open ResEdit by double-clicking on it as usual. When it is up and running you'll see a fairly normal-looking file selection window listing your files and folders as they appear on a normal desktop.

Open up your System Folder if necessary (again by double-clicking on it) and then double click on the Finder. This time the selection window will list all the Finder's resources. Scroll through to LAYO, and double-click on it. You'll get yet another window containing only the one resource: "LAYO ID = 128".

Double-click on that too, and you'll be rewarded with a template full of text-entry boxes and radio buttons. Scroll through it to see what it will do, and feel free to change any which appeal to you.

When you're happy, close ResEdit's windows one by one. As you close the Finder's window you will be asked if you want to save it before closing, and of course you do. Then Quit from ResEdit to return to your (customised) Finder.

All should be well, but when messing around with system resources for the first time it is all too easy to end up with an irrecoverable crash. If this happens, the best

thing is to restart the Mac using the copy of your original System which you made earlier.

Then insert the disc with the damaged Finder, throw the latter away and copy the good one over from the startup disc.

ResEdit is a fascinating and powerful tool – for example, it can change the entire appearance of a dialog box. Try using it, more or less as above, to open up a dialog-driven application such as the Font/DA Mover.

From the resulting resource-list, open DITL (dialog item list). Whereas there was only one LAYO resource in the Finder, the Font/DA Mover contains a number of DITL resources.

The first of them should be "DITL ID = 10". Open that, too. You should see the familiar screen of the Font/DA Mover, with spaces for file-selection boxes to left and right, an Open button beneath each of them, and so on.

Try single-clicking on any item which contains text. You'll see that it becomes selected, and can then be resized or dragged around much as the objects in MacDraw can be moved around. If you double-click on the item, you'll find that you can change the text within it, too.

### Rich man, poor man, beggar man ...

MOST of us know by now that copy protection, which used to be applied indiscriminately to all software and at the customer's expense, rarely appears on anything other than games these days.

And since software houses are set up with the objective of making a profit, it may seem surprising that they have now largely dropped a very effective means of preventing unfair and illegal copying of their products.

However, this is no contradiction but ▷

merely one of those rare instances where the law of the market place accidentally benefits the small customer.

What seems to have happened is that large-scale consumers of software – businesses, universities, schools – found that they could pay £500 or more for some new product, only to find that it came on a disc so full that there wasn't even room for an extra font or desk accessory (let alone room for less AppleTalk-wrecking versions of the System files). And the poor purchaser could do nothing about it.

Worse still, copy-protected software would almost never run from a hard disc, even when a special installer was included.

And what does a large Lab like ours do when it has paid several hundred pounds for a copy of SuperSmackyBotty II and finds that it can't even get the thing to run? Why, it does nothing at all.

Under different circumstances, it might instead have bought a few dozen or a few hundred more copies. Lying around our Lab there are two or three thousand pounds' worth of unusable software, collected since mid-1984, each item a mute testament to the profit-killing efficiency of software protection schemes.

From my own point of view, the least pleasant effect of copy-protection was the way it forced me to pay for someone else's assumption that I was a thief.

### This is the modem world

IN a similar vein, many of us go in for what is affectionately called BBSing and is more pompously termed computer conferencing. Via a piece of hardware called a modem and a suitable piece of software running on our Macs, we contact via the telephone other Macs using similar software and modems.

The two Macs, the remote one and mine, can then exchange text (messages, cries for help, jokes, news and so on) and program files. If you've been following Cliff's articles, you'll know there is a mass of freely available shareware software for the Mac, but I'll talk about that another time.

The question this time is the degree to which text created by you and placed by you on some such Bulletin Board System remains your property.

As far as I've been able to find out, the particular law which applies is the ordinary law of copyright. If you were to copy this article (though Lord knows why you should want to) and then distribute the copies in any form, we would be able to sue you for infringement of our copyright.

Similarly, were someone to download some message of yours to a BBS and perhaps edit it ever so slightly before showing it to your boss, wife or husband in such a

way as to do you harm, you would have a perfect case.

If you took your case to court, you'd probably win. But you might not, whereupon you would find yourself saddled with a huge bill for costs, since copyright cases are notorious for dragging on and on.

Of course, the overwhelming majority of the sysops, or system managers, of such BBSs are civilised human beings who wouldn't even think of committing such devious crimes against their contributors.

But I have come across one little Hitler of a system manager (whose BBS shall never be recommended in this column) who felt that anything posted to "his" board became his own property, to do with as he wished.

And, even more insidiously, I have heard of a case where one of the contributors to a BBS was downloading other people's remarks and using them in a campaign against the BBS itself.

I must talk to you more about BBSing soon: Like photography or hi-fi, it is one of the world's most addictive and most expensive hobbies.

*If you've got a problem related in some way to your Mac and its many uses, send it to Tony Hasemer at Apple User, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.*

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## Helping hand

I HAVE just read the Feedback section of the June Apple User issue. I see that J. Shippam is having trouble with the Wizard and Princess adventure game and hope that the following hints might help.

Try saying a woman's name while standing next to the bridge (she might have lost a locket). Cross the bridge and go to a cave for a rest: I won't harp on about getting past the giant.

I hope these suggestions are of some help. – Alan Martin, London.

★★★

IN answer to J. Shippam about Wizard and Princess:

Don't drop everything in order to cross the bridge. Instead, "Say ----" and your possessions will disappear. When you've crossed the bridge, find the cave and your things will be inside it. You can then use the ---- to deal with the giant.

If J. Shippam is interested, I can provide a full solution to this adventure, as well as many others. I'd be grateful if you could pass on my address as I'd like to exchange tips and ideas with fellow IIc-owning game player.

Incidentally, two glaring errors in May's issue. Dave Russell's review of Prince claims that the price of £49.99 includes ribbons. It certainly doesn't: The four ribbons shown in the photograph will set you back another £51.80, as MGA Microsystems wearily pointed out to me.

And on page 8, you state that "Pawn for the Apple II" has won awards for – among other things – "best graphics". As Rainbird confirmed, the Apple II version doesn't have graphics.

The June issue is excellent, but an awful

lot of space is devoted to the Macintosh. Could we not see Apple User dedicated solely to Apple II owners in the future? – Sally Bowen, London.

● We have passed your address to Mr Shippam. We cannot agree that space devoted to the Macintosh is wasted – surely it's worth seeing what's happening in other areas, particularly as there is an increasing tendency to draw the software approach of the machines together?

On the subject of Prince, **Dave Russell** replies: I'm staggered! If you look at the photo which was printed with the review, you'll see two boxes. The thicker of the two held the ribbons and the thinner one held the manual, disc and paper.

However, they were supplied to me in a further sleeve which held them both and gave the impression of a total package. I expressed a reservation about the price at the end of the review, but if that price doesn't include the ribbons I'm afraid I wouldn't recommend Prince to anyone.

If you want to print T-shirts, buy the heat-transfer ribbons separately – if you want coloured pictures, buy a pack of felt-tip pens.

## Sheer frustration

PERSONAL experience and Apple User Feedback letters made me realise that the Apple II expansion slots are a mixed blessing for the average private user. Compatibility has proved to be a major frustration.

Starting with the Apple IIe, extended 80 column card, dual disc drives, monochrome monitor, joystick and Epson FX100 printer and parallel interface card gave me and my family a year of happy personal computing.

The installation of Keyzone's Spectrogram RGB card to drive a Microvitec colour monitor created the first inconvenience, as this card intermittently prevented the use of the printer from QuickFile (a Pascal 1.1 based program). Neither Epson nor Keyzone could offer a solution.

Buying AppleWorks 1.2 forced the issue and I had to install a new parallel interface card as Epson admitted that its card was not compatible.

Trying to prevent future problems I bought Keyzone's interface card, which worked after a trial and error approach (credit to obscure manuals) in defining the interface command in AppleWorks.

When running out of memory and filesizes I chose Ramworks as a replacement for the extended 80 column card. RamWorks III does not fit the European Apple IIe as slot 0 is not in the same position as in the American Apple.

Applied Engineering therefore produced RamWorks III which got round this problem by repositioning the memory chips and cutting a corner out of the PCB.

RamWorks II (512k) claims to offer a substantial printer buffer if Pascal 1.1 protocol is used for status checking of the printer interface. Keyzone claims Pascal compatibility so the buffer option should work. Only it doesn't.

Trying to use VisiPlot for some graph printouts I found this program no longer prints graphics, which was no problem before the installation of Keyzone/Applied Engineering cards. I have yet to identify the culprit.

With the arrival of the IIgs, I wonder how Apple can possibly claim a high percentage of hardware and software compatibility when IIe (US, Euro), enhanced IIe and numerous add-ons in the Apple family were never fully compatible in the first place.

My bottomline question: Are you in a position to give me a bit more confidence that waiting will eventually allow me to buy a basic IIgs and still use most of the hardware described, or, even better, that I could expect a substitute motherboard converting the IIe into a IIgs?

Or is it probably better to admit defeat, dump all the hardware (and software) and research the market for state-of-the-art and better-value-for-money alternatives? – Wim Verwijmeren, Surrey.

● VisiPlot is not dumping graphics because it does not recognise the interface card. This is the cause of the frustration, not the slots themselves.

Unfortunately, different manufacturers of hardware and software do things differently.

The IIgs will solve a lot of these problems – as long as you stick to the on-board ports, simply because every piece of software is going to support what's already in the ▷

< machine. We agree there are problems with some older software, but not generally with newer products.

## Longer link

I HAVE an Apple II+ and wish to connect it about one metre from the keyboard.

I don't know if I can use the same old keyboard, if I need an adapter, or if I must buy a new keyboard. I have heard an adapter is needed, and that is why I have not yet tried to modify the machine.

Please tell me if there have been any relevant articles in the magazine. – **Ferruccio Lorato, Verona.**

● There have not been any articles in *Apple User*, but I have seen Apples with the keyboards removed and connected with a ribbon cable about 0.5 metres long.

I would try it, especially if you can keep the cable as short as possible.

## Which switch?

I AM the owner of a bilingual (Hebrew-English) Apple IIe (128k, 80 column), an ImageWriter I and an Apple Super Serial card. I use all kinds of programs, including the Hebrew version of PrintShop.

I bought my printer and card secondhand without the manuals, and I am not sure whether I set the switches correctly. I think I could print in different fonts by changing the switches, but I do not know how.

I find your magazine very interesting, and closer to my needs than the American ones. – **A.Yaniv, Hove.**

● You can change some of the characters of the ImageWriter by setting the DIP switches. Briefly, the #,@,[,],~ characters of the American set can be changed into others using DIP switches 1-1, 1-2 and 1-3.

They can also be changed using software control codes – the table below shows how.

In addition, you can load the ImageWriter with your own, custom-designed font and use that in place of the default font. Unfortunately it's too lengthy a process to describe here, but we will send you details.

*ImageWriter DIP switches*

Language	1-1	1-2	1-3	Ascii decimal code to send
American	open	open	open	27, 90, 7, 0
British	closed	closed	open	27, 90, 4, 0, 27, 68, 3, 0
German	open	open	closed	27, 90, 3, 0, 27, 68, 4, 0
French	open	closed	closed	27, 90, 1, 0, 27, 68, 6, 0
Swedish	closed	open	closed	27, 90, 2, 0, 27, 68, 5, 0
Italian	closed	open	open	27, 90, 6, 0, 27, 68, 1, 0
Spanish	closed	closed	closed	27, 68, 7, 0

## Print problems

HOW can I print italics and near letter quality using AppleWorks?

I am using version 1.0 on an Apple IIc connected to an Epson LX-80 printer. Whenever I want to print a letter in NLO mode, I have to start from Basic.

If I accidentally switch off the printer, I have to save the file I am working on, go into Basic, give the command for making the printer enter NLO mode and boot AppleWorks again. Isn't there an easier way?

Whenever I print a title for one of my reports, using the AppleWorks word processor, I use five characters per inch [emphasised mode]. I issue 10cpi at the end of the title: However, the entire report is printed in emphasised mode.

What is causing this problem? How can I print the report in smaller characters?

And how can I print pictures created by Mousepaint version 1.0? – PrintShop works all right with the printer.

Also, how can I make screen/text dumps? Are there any utilities which could help me? – **H.Zinzuwadia, Dar es Salaam.**

● You can put the printer directly into NLO mode by pressing the online and line feed buttons. Then press the sequence: OL, FF, OL, FF, LF, OL, where OL is online, FF is form feed and LF is line feed.

To revert to draft mode use OL/LF then OL, FF, LF, OL for pica, and OL/LF, OL, OL, OL, OL, FF, LF, OL for elite.

Try putting the 10cpi command at the start of the next line rather than at the end of the title.

I do not know how to dump pictures from MousePaint. Perhaps you can save them to disc, then print them if you get hold of an Epson graphics dump program. We will try to publish an Epson dump in *Apple User*.

people living in South Africa do not support the policies of the government, the imposition of supply sanctions on the country are not appropriate.

There are some 20,000 to 30,000 Apple computers in the country. Of those I would guess that individuals like myself and educational establishments form the vast majority of users.

The private users almost all have access to support from friends and businesses in Europe and the Far East, and so have no problem in maintaining and improving their systems.

The people the ban will hurt are the educational establishments. Of course the schools and colleges which are most progressive in SA, as in England, are those which are privately run.

In this country they have two characteristics which go together: they are actively into computer education, and they are multi-racial. The result of your embargo is, therefore, to slow down the computer education of students of all race groups.

It serves to hurt most the people you would like to support. Seems stupid to me.

– **Brian R. Aslett, Gallo Manor, South Africa.**

## User group

MACINTOSH users in the Croydon area of South London will be interested in the formation of CMUG.

For the time being this will meet with the well-established and successful Croydon Apple User Group at 7.30 for 8pm on the third Thursday of each month.

Interested users should contact me on 01-777 5478 for details. – **Paul Vernon.** □

## That ban

I READ your report "Support for a ban on South Africa", in the December 1986 edition of *Apple User* with some dismay. While I, and a reasonable proportion of



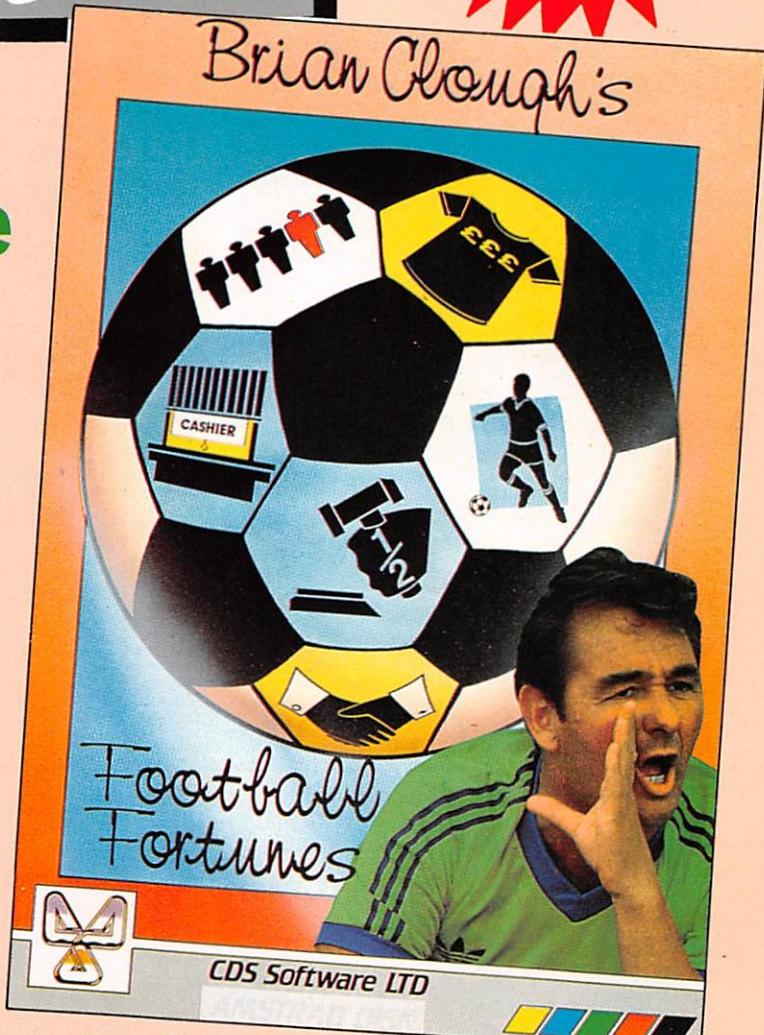
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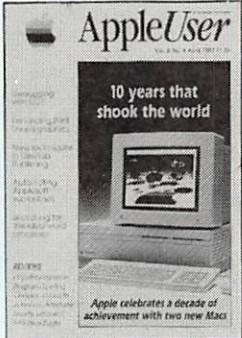
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Reviews: Micol basic, ComicWorks and GraphicWorks for budding cartoonists – Programming: Device assignments in CP/M, file editing in Pascal, coding and decoding and playing Patience – Utilities: Booting Pascal 1.3 and customising CIA Files – Desktop Publishing: Graphics Factory visited and an update on the latest hardware and software – Fun and Games: Shanghai, 221B Baker Street and Crosscheck reviewed – PLUS all the latest Apple news and your letters.



**April 1987**

Reviews: Pinpoint Pop up Spelling Checker, Pinpoint Ram Enhancement, Gutenberg Word Processor – Programming; Using DDT in CP/M, Pascal Printer Control Unit in action – Utilities; Making more of Print Shop's Graphics, Encoding continued – Application; Low-cost Image Analysis – Desk Top Publishing; Macs in the newspaper industry, an introduction to DTP, book on PageMaker techniques – Fun & Games; F-15 Strike Eagle, Crusade in Europe, Alternate Reality, The City, Hacker II – Feedback.



**May 1987**

Reviews: Mousestuff for Pascal, Swiftware on disc, Multiscribe 2 – Fun & Games; Prince (colour printer kit), Brian Clough's Football Fortunes, Hollywood Hijinx, Starglider and King of Chicago – Programming; Pascal File Control System, CP/M non-disc calls, Multi-choice quiz game – Utilities; Toolkit Assembler from the Flipper, Graphics library cursor routine, encoding techniques – Desk Top Publishing; Quick Print Franchising, Fancy Fonts – PLUS all the latest Apple news and your letters.



**June 1987**

Reviews: ObjectLogo, IIGS microprocessor, Microsoft's Works, the WIMP environment – Fun & Games; Bureaucracy, Jewels of Darkness, Autoduel – Programming; Pascal File Control System, customising AppleWorks, CP/M disc functions – Utilities; Debugging on-screen listings, Working with Dos sectors, Radio teletype receiver, Machine code tracer – Building a Mac software library, Designing a coding system, Mac Shareware, First impressions of the Mac SE – PLUS news and Feedback.



**July 1987**

Reviews: Adobe Illustrator, LaserWriter, VIP Professional, Microsoft's Word and the Beagle Bros' Prodos compiler – Fun & Games; Dark Castle, Moebius, Silicon Dreams and Guild of Thieves – Programming; Pascal Tutorial, CP/M BDOS function calls, Shape Chaser (a shape table utility), Screen Editor for Basic, Dos Info command utility – Honourware, Biorhythms from Spreadsheets, Mac problems solved, Opening up the Mac, Desktop publishing in South Africa, News and Feedback.

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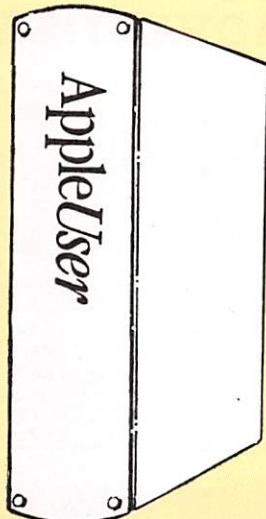
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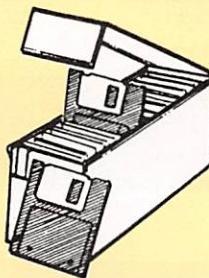
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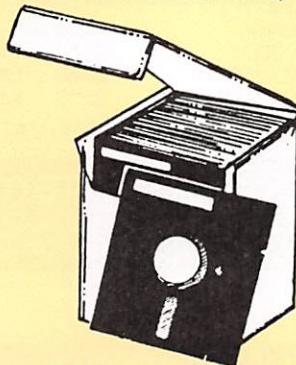
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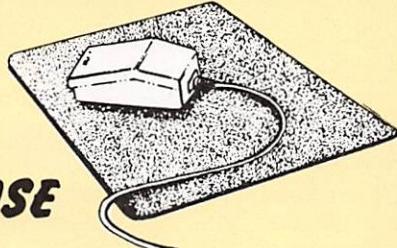
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Cotswold Press Limited,  
Stanton Harcourt Road, Eynsham, Oxford.  
Telephone: Oxford (0865) 880608.

Set up your own closed user group on

# microLink

MicroLink is ideal for transferring instant information between groups of people – between branches of a company, members of a club or just friends with like-minded interests.

Whether there are five or 500 people in the group, they can all be sent the same information in one operation . . . instantly.

And each recipient can immediately send a reply, or his own comments, to every other member of the group.

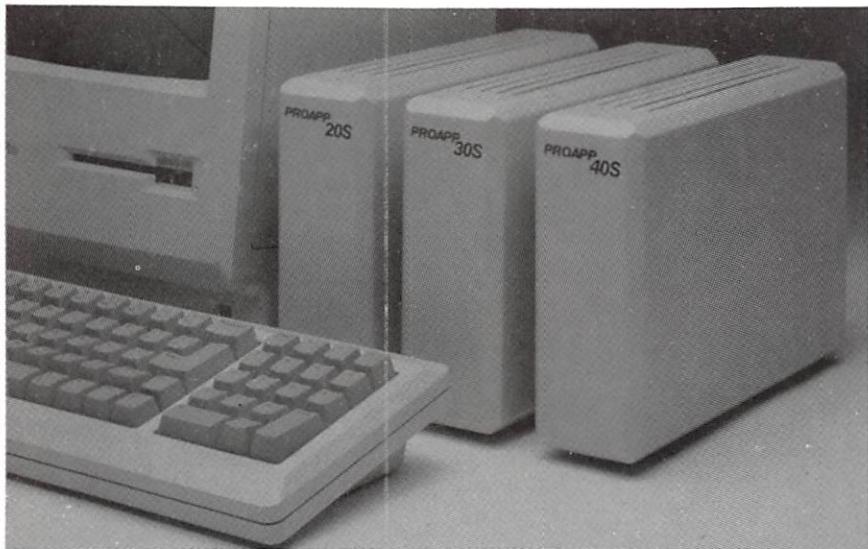
Head offices of companies use MicroLink to send daily memos to their regional offices. Chains of shops use MicroLink to receive daily trading reports from their branches.

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## High Performance Hard Disk for the Macintosh Family and Apple II

20, 30, or 40 Megabytes  
of high-speed SCSI storage

ProAPP "S" Series is a high-performance, high-capacity external hard disk for the Macintosh™ Plus, Mac II and Mac SE as well as Macintosh 512 with SCSI adapter, Apple IIgs,™ IIe and II Plus computers using a SCSI card.

With access times as quick as 29 milliseconds and a storage capacity up to 50 times greater than an 800K disk drive, the ProAPP "S" Series drive is among the highest performance drives now available.

The ProAPP "S" enables users to store application programs, large documents, numerous fonts and graphics all in one fast and easy-to-use device. That eliminates

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Reliable, expandable, easy to use

ProAPP "S" Series combines the newest high-speed Small Computer System Interface (SCSI) technology with time-tested Winchester rigid-disk standard. The result is a mass storage unit of exceptional reliability, speed and ease of use.

The unit has been designed for easy expandability, with ports that enable users to connect up to seven SCSI peripherals to their system. That means additional SCSI-compatible hard-disk and tape drives, printers, plotters, modems and optical memory devices can be "daisy chained" through ProAPP "S" drives—without taking up the computer's serial ports.

### Features

- 20, 30 or 40-Megabyte formatted capacity
- SCSI technology for high-speed performance
- Pre-formatted and easy-to-use—plug in and power up!
- Expandable—connect up to seven SCSI peripherals
- Runs quiet and cool, low power use
- Utility software for testing and data back-up
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# Bidmuthin smashes the hard disk price barrier

### Item

### Price

#### Hard Disks

20S	£499.00
30S	£599.00
40S	£879.00
SCSI card (required for IIgs/IIe)	£75.00
Carry Case for "S" series	£25.00

#### 3.5: MicroFloppy Disk Drives

800K 3.5" Disk Drive (For Mac, IIe/IIgs. Not IIc)	£199.00
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800K Drive w. Cntler + Copy II Plus	£299.00
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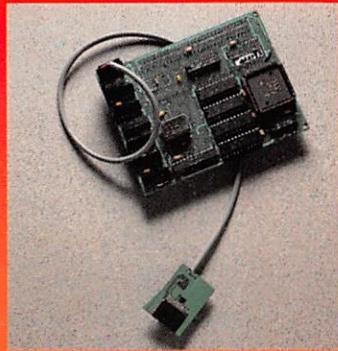
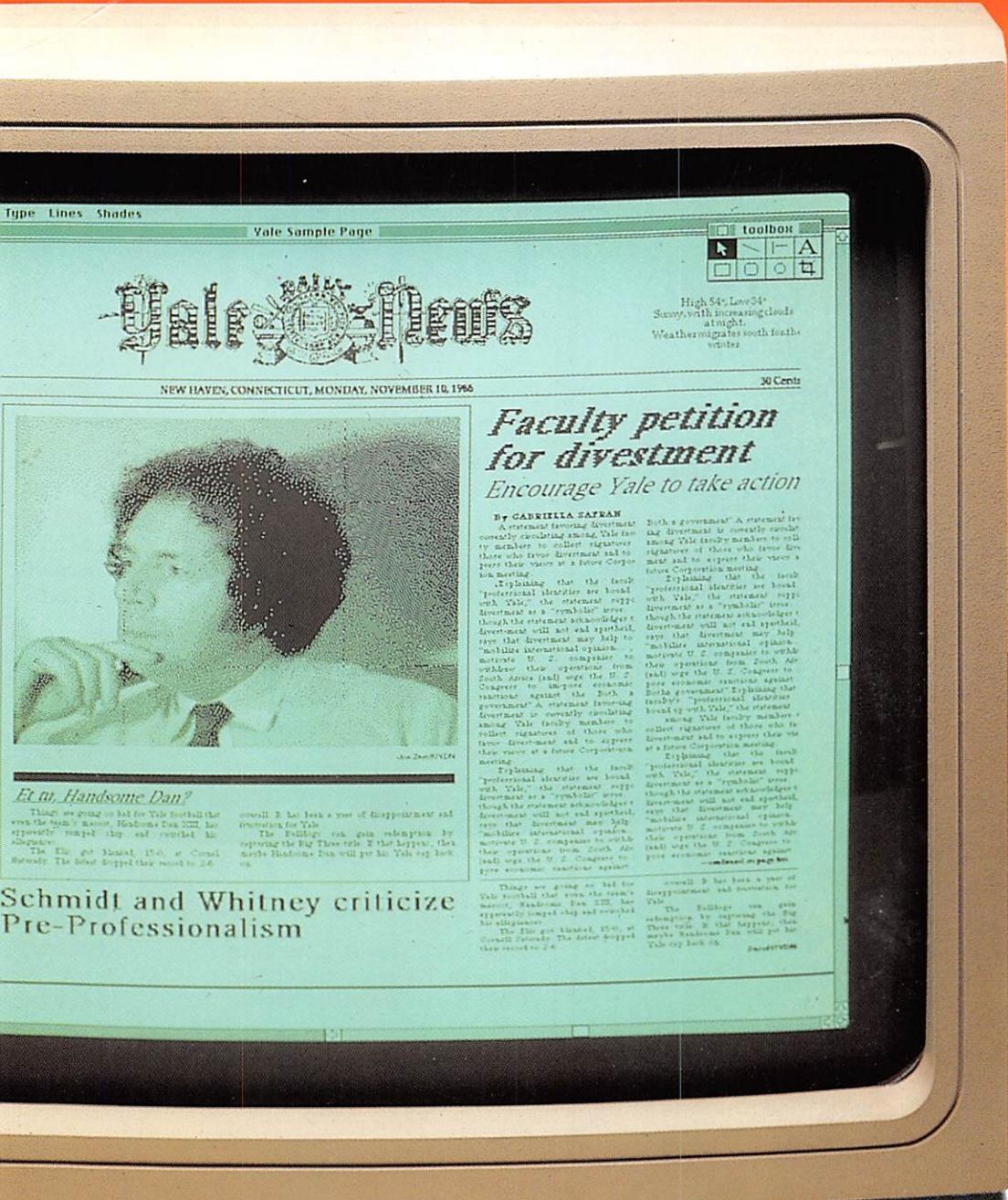
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## ProAPP "S" Series SCSI Hard Disk

Hardware characteristics	20S	30S	40S
<input type="checkbox"/> Formatted data capacity:	20 Megabytes	30 Megabytes	40 Megabytes
<input type="checkbox"/> Low power consumption:	15 watts	15 watts	10 watts
<input type="checkbox"/> Weight	9 lbs (4.1 kg)	9 lbs (4.1 kg)	9 lbs (4.1 kg)
<input type="checkbox"/> Height	6.5 in (16.5 cm)	6.5 in (16.5 cm)	6.5 in (16.5 cm)
<input type="checkbox"/> Width	2.5 in (6.35 cm)	2.5 in (6.35 cm)	2.5 in (6.35 cm)
<input type="checkbox"/> Depth	10 in. (25.4 cm)	10 in. (25.4 cm)	10 in. (25.4 cm)
<input type="checkbox"/> Electrical	Switchable power supply for international use—110V AC—60 hz 220V AC—50 hz		
<input type="checkbox"/> Interfaces	Two 50-pin SCSI connectors		
<input type="checkbox"/> Compatibility	Macintosh Plus, Mac II, Mac SE, as well as Mac 512 with SCSI adapter, Apple® IIgs, IIe, II Plus with SCSI card		
Target mode	IBM® PC, XT, AT (through host adapter)		
Initiator mode	SCSI tape, printers, plotters, modems, optical memory		
HFS-compatible	yes	yes	yes
MacServe™-compatible	yes	yes	yes
Software characteristics			
<input type="checkbox"/> Backup program modes:			
volume	yes	yes	yes
file by file	yes	yes	yes
incremental	yes	yes	yes
<input type="checkbox"/> Runs diagnostics	yes	yes	yes
<input type="checkbox"/> Auto boot	yes	yes	yes

Specifications and availability subject to change without notice

# MAC'S BIG



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